Australian Consumers' Association October 1992

CHOICE

MICROSHELL BIKE HELMETS
How do they stack up?

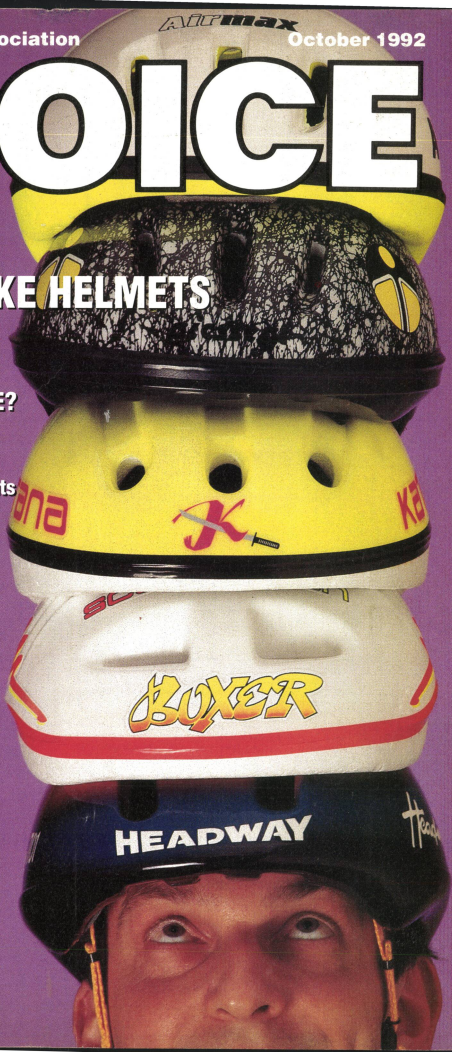
LOST IN THE JARGON JUNGLE?
A guide to economic-speak

LIVING WITH ARTHRITIS
Quack cures and proven treatments

HOTHOUSE EARTH
Back to basics on the greenhouse effect

Answering machines

Secateurs



CHOICE

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All products tested are bought by ACA's anonymous buyers the way consumers normally do. No samples are accepted. Ratings and conclusions are based on laboratory tests, user tests and/or expert judgments.

Our findings cannot be applied to models other than those included in reports. We do not necessarily test every product available in any particular class of goods. Because the quality of goods can vary or be varied, test results are not infallible. We put a lot of effort into double-checking and getting the facts and test results right. If a mistake slips through, we publish a correction as soon as possible. However, information also dates. If this issue is no longer current when you want to use its advice, call our Information Service to check whether changes have taken place before buying.

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Editorial

OUR AUGUST report on car reliability drew a fair bit of flak from the Australian car manufacturing industry, as well as from some motoring writers. We were accused of shonky research, biased results and taking great 'glee' in dumping on the Australian industry.

We were therefore interested to note the release in early September of another survey, which, while not directly comparable with ours, certainly seems to support our overall conclusions about the reliability of the local product relative to imports.

The survey, conducted by the Automotive Research and Marketing Service (ARMS), covers new cars only, with owners reporting faults which appeared in the first 90 days, whereas ours dealt with cars built from pre-1980 to 1991.

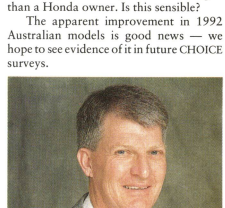
We grouped our results into five age categories, with the most recent covering 1989 to 1991 models. In this group, the percentage of surveyed Australian cars with no problems reported was 69%, compared with 84% for imports.

The ARMS survey shows 1992-model Australian cars closer to imports in terms of quality. But ARMS data for new cars made each year from 1989 to 1991 shows that that the picture wasn't so rosy then. These are the models included in our 'youngest' age category and the results are not inconsistent with our own.

Finally, a brief response to critics of our survey methods. The 1992 CHOICE survey covered 8400 cars. There were small numbers (clearly shown) for some models, but the overall trend is *not* dependent on these.

And although respondents select themselves, there is no reason for this to bias the results towards a particular brand, model or country of origin. To suggest otherwise would assume that a Holden owner is, by definition, more likely to be a 'whinger' than a Honda owner. Is this sensible?

The apparent improvement in 1992 Australian models is good news — we hope to see evidence of it in future CHOICE surveys.


Norm Crothers
Manager, Tests & Research

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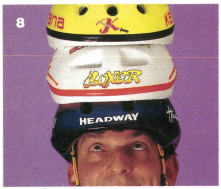

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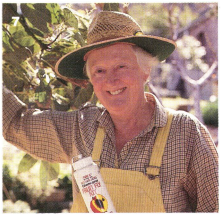

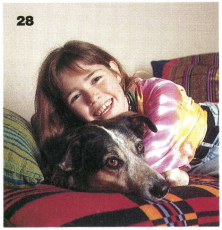

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December, January, February

Tests: Cordless phones, computers, water filters, frozen desserts, in-line skates, kettle barbecues, kids' meals, washing machines, dishwashers, cameras.

Features: Pool fences, indoor air quality, breast cancer, credit cards, shade materials, hair products, telecommunications update, Australian made, buying a secondhand car, fuzzy logic.

Pseudoscience

TIME WARP

IT doesn't even sound too good to be true, just plain far-fetched. A watch with a "unique personal electromagnetic 'shielding' instrument designed to protect the body against the reported harmful effects of environmental extremely low frequency radiation". Beam me up, Scotty!

The Teslar watch is claimed to heighten resistance to stress and illness, free you from fatigue and jet lag, and increase energy and feelings of well being and balance.

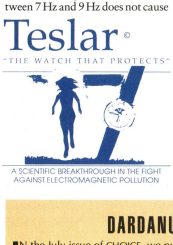
The distributor's scientific backup uses the following 'logic': Our modern environment is awash with electromagnetic radiation from appliances, power lines, television transmitters etc. Exposure to extremely low frequencies (ELFs) may increase the risk of cancer or leukaemia. Exposure to ELFs between 7 Hz and 9 Hz does not cause harm to the body. Therefore recreating a frequency of around 8Hz in the body will reduce the effect of all the other ELFs.

According to the Australian Radiation Laboratory, there are many published papers in this field with contradictory findings, although there is some evidence of a link between strong magnetic fields such as those around high current electricity transmission lines and an increased risk of cancer. It adds, "it seems odd, if not outright imprudent, to deliberately irradiate a person with a man-made field".

We aren't in the position to test products such as these but we are highly sceptical of this watch's supposed benefits. And for $245, you'd want to be sure you're onto a good thing before you reach for your wallet.

Just for interest, the company that distributes the watch also offers the following 'exciting' products:

- **Ghost buster.** "Clears the home, office, boardroom etc of stagnant emotions."
- **Guardian crystal.** "Focus your energies with this beautiful pendant."
- **Garden energiser.** "A cocoon for your plants and garden, watch 'em grow!"



DARDANUP WATER

IN the July issue of CHOICE, we published the results of our subscriber tap water tests, which included a high nitrate finding in Dardanup, WA. Although we rechecked all our high results with the respondents, this particular result was due to a misunderstanding with one of our subscribers,who tested the well water on his property rather than the rainwater supply used for drinking.

The Water Authority of Western Australia tells us its tests show nitrate levels in Dardanup are well under Australian (and international) guidelines for drinking water.

Our point, that people are likely to have higher levels of nitrates in their water if they live in areas of high fertiliser use and get their drinking water from bores, still stands, however.

■ Thanks to the subscriber in Leinster, WA (one of the other areas to record a high nitrate concentration in the water) for an update on the situation there. Leinster has a demineralised water supply in the town made available specifically to pregnant women, breast-feeding mothers and children under the age of two. The dipstick test on this supply found a low level of nitrates — which is good news.

Child safety

UNCERTAINTY OVER NEW 'SAFER' BUNK

PARENTS who read our report on the dangers of bunk beds may be interested in the new SafeTBunk introduced by Joyce Australia. There has been concern and some controversy surrounding the product however.

The bunk was launched with much fanfare and use of child accident statistics — in particular, the work of the SA Health Commission's Injury Surveillance and Control Unit. So we were keen to hear that unit's evaluation of the bed.

We were particularly interested because the manufacturer had decided not to 'go with' the proposed Australian Standard, but focus on the less comprehensive British Standard. This is a pity because although the SafeTBunk is one of the safest bunks available, it's still flawed in that it's considered to have entrapment hazards.

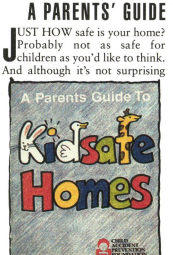
The problem is essentially the gaps in the framework, which could theoretically hang a child if he or she slipped through. The proposed Australian Standard (developed with the knowledge that hangings had occurred), stipulates that if the gaps are big enough to allow a child's body to slip through, they should also be large enough to allow the child's head to follow. The gaps in the SafeTBunk are too small to comply with this requirement.

On the positive side, the Injury Surveillance team says it's impressed with the low height of the bunk.

In response to our enquiries Joyce Australia says it is monitoring the development of the Australian Standard, and if a minimum of 230 mm is stipulated as an anti-entrapment dimension, it will modify its bunk accordingly.

A PARENTS' GUIDE TO KIDSAFE HOMES

JUST HOW safe is your home? Probably not as safe for children as you'd like to think. And although it's not surprising that more accidents occur at home than elsewhere (because that's where children spend the most time), there are things you can and should do to avoid accidents.



The **Child Accident Prevention Foundation of Australia** has released a new booklet called *A Parents' Guide to Kidsafe Homes* full of practical tips on the things you can do. Never to call medicines 'lollies', for example, and to install slow self-closing springs on doors (or catches to keep them open) to avoid crushed fingers.

You can get your free copy from the Foundation by telephoning 008 032 322.

Advertising

TURN THAT NOISE DOWN

Is it just your imagination or are television advertisements louder than programs? The answer is a little obscure. The ads aren't actually louder but the programs are generally quieter.

We recorded the volumes from both programs and advertisements and found the maximum volumes generally the same. However, the advertisements are more consistently loud, probably because they are trying to pack a lot of information into 30 seconds or so. A program such as a midday soapie, tended to have more quiet passages, so when the ads come on they can seem louder.

You probably won't notice the noise of ads during the news, action shows, loud sports, or quiz shows because the volume is consistently loud in these programs as well. However, in movies the dialogue may be at lower volumes to increase the effect of loud noises. If you turn the volume up to understand the dialogue, you may find when the ads come on they're as loud as the crescendos in the movie.

So, no, it's not your imagination. But neither, apparently, is it a plot cooked up between the television stations and the advertisers.

Food additives

THE NUMBER GAME

If you're reading a food label and you're not sure of the difference between additives 127 and 300, and what's the point of them anyway? — research shows you are not alone.

Australia's food-additive labelling system, which dates back to 1987, is based on the European system of numbering. Although more comprehensive than the version the UK adopted, there are growing doubts that the message is getting through to Australian consumers.

Recently published research from the School of Public Health, Curtin University of Technology in Perth found in a sample of members of the general public, 39% were able to identify a food additive. A proportion of these (63%) used food-additive labelling when shopping, but about half of them said they found it difficult to understand or confusing — the two main reasons being 'lack of information about food additives' and 'the numbers were meaningless'.

It comes as no great surprise that the respondents in the study expressed a desire for more information on food additives, including their functions and side effects. And a second sample of members of the Allergy Association of Australia revealed a desire to read food-additive names rather than numbers.

We agree that labelling needs to be clearer — it should be easily understood, contain all important information and be uniform across products. Another possible outlet for clearer additive information is the supermarket — as a shelf label, for instance. This should be the most help — since the majority of purchase decisions are made at the point of sale.

Several commentators question the quality of information 'fed' to consumers, mainly by the mass media. But as another points out, one of the factors causing public confusion is the lack of consensus amongst the scientific community on key food safety and nutrition issues. In this situation information becomes even more important to allow consumers to make their own choices.

(And by the way, the additive 300 is otherwise known as vitamin C — it's sometimes used as a preservative. And 127 is erythrosine, a red-pink colour which although banned in the US is still allowed in Australia.)

Telephone costs

DIRECT COSTS MORE

In its booklet *How to Survive Foreign Phones*, OTC refers to its Australia Direct service using the words: "This service connects you directly to an operator to make a reverse-charge call ... The cost is billed ... at Australian rates — which are amongst the lowest in the world."

As a Consumers' Association staff member found out to her cost, what the company (now merged with Telecom into AOTC) fails to point out is that the rates for OTC Australia Direct are more than one and a half times more expensive than the normal Australian international rates. This is because as well as the usual IDD rates, there is an 80 cents per minute loading for operator calls and a service fee of $3 for each call. There are also no off-peak rates for this service.

So whereas a 20-minute call from the UK to Australia using Australia Direct would cost you $49 (at 'Australian rates') if the call was the other way round, from Australia to the UK (also at 'Australian rates'), it would only cost you $30 using IDD at peak time, or $24 at off-peak.

So if you're overseas and counting costs, perhaps needing to speak to your partner back home — and from either direction you'll be footing the bill in the end — get them to ring *you*, or check the prices of the local phone service and use that if it's cheaper and convenient. A 20-minute call from the UK using British Telecom will cost you $37.28 at peak time or $30.70 off-peak — a saving of up to $21.10 on the rate charged by Australia Direct.

OTC Australia Direct numbers are listed in your telephone white pages under *Calling Information*.

Our table shows the cost of overseas calls in Australian dollars in September 1992 (information supplied by AOTC). The only difference between a reverse-charge call and one using Australia Direct is that in the former you contact the local operator who then contacts an Australian operator; using the Australia Direct number you are immediately connected to an Australian operator, which saves you grappling in tourist Italian, Arabic or Cantonese.

20 minute call	To Australia using overseas companies		OTC Australia Direct	IDD call from Australia	
	Peak	Off-peak	Reverse charge	Peak	Off-peak
NZ	$22.60	$14.17	$44.00	$25.00	$17.00
UK	$37.28	$30.70	$49.00	$30.00	$24.00
USA	information not available		$49.00	$30.00	$24.00

CAN YOU HELP?

We're planning an article on recycling next year and we'd like to hear of any schemes you know about or are involved in to help us form a picture of how much recycling is going on around Australia.

We'd like to know:

- What items you recycle.
- What items you'd like to recycle but can't, especially if you've made enquiries in your area.
- Who is running the scheme — the local council? a local manufacturer? (please include name where known).
- Are the products collected on your street or do you have to transport them to a collection point? Where is it? (supermarket, car park?) Is this convenient?
- Have you any idea what the end product is?
- Do you buy, or have you seen items for sale which are made from recycled products? Please give as much detail as you can, including your impression of them.

We're particularly interested in any special recycling initiatives you're aware of — especially in your area. If you can help, please write to **Recycling**, CHOICE, 57 Carrington Road, Marrickville, NSW 2204. We need your comments by November 16. Please include a daytime telephone number in case we'd like to contact you for more details. Thanks!

Confusing advice

GAS BAYONETS — RECALLED OR WHAT?

THERE'S been a problem with a supply of faulty gas bayonet fittings which have been leaking gas in homes. Here's a copy of a recent public notice in the press, designed to alert consumers. But is it satisfactory and does it tell consumers what they need to know?

Is it a product recall? A warning? A 'withdrawal from sale'?

The notice doesn't even tell you who it was issued by. When you look to see whom to contact you are left no wiser: "Customer Services". Surely this is unsatisfactory.

On telephoning, the phone was answered "Customer services". It turns out to be a parts distributor rather than the manufacturer of the bayonet fittings. He said:

- 1% of those fittings produced from April to September 1991 were leaking gas when no appliance was connected.
- They will supply a plug to fit to the socket.
- This plug must be removed when joining an appliance to the bayonet point.

But isn't there a good chance the plug will simply get lost? How long would the plug last in rented premises? Would a new owner or tenant even know a plug was required?

On asking how to identify a faulty bayonet point, part of the information given was "You can smell the leaking gas." What are the health implications of a permanent or at least seasonal (ie when no heater fitted) gas leak?

All in all this is an unsatisfactory way to treat consumers and a very temporary and flawed way to deal with what should be a permanent reticulation system (just like the electricity or water supply). The manufacturer should accept responsibility publicly and the faulty part should be replaced.

PRODUCT SAFETY NOTICE

FLOOR MOUNTED BAYONET TYPE GAS SOCKETS

used in conjunction with DOMESTIC PORTABLE GAS HEATERS, BARBEQUES AND OTHER GAS APPLIANCES

This safety notice concerns floor mounted bayonet type gas sockets manufactured between April 1991 and September 1991 which, in certain circumstances of use, may leak gas. The gas floor sockets are used in conjunction with domestic portable gas heaters and other gas appliances which utilise both natural gas and liquid petroleum gas (LPG).

IDENTIFICATION

Potentially affected gas floor sockets are identified by a 6.4 mm diameter projection on the brass valve within the socket and have one of the following markings on the underside of the flange:

"Barfell KB 330450" or "Barfell 330480" or "Keeflex 8800400A"

However, these markings will not be visible on installed floor mounted gas sockets.

The majority of the affected sockets are chrome, but brown and beige enamelled versions have also been supplied.

NOTE: There are many similar floor mounted gas sockets which are NOT affected. These include:

1. sockets installed prior to 16 April 1991;
2. sockets which are 'egg-shaped' and have a sticker with the word 'Barfell' attached to the outside;
3. sockets which have two allen keyholes at the back end.

Gas leaks can only occur when an appliance is disconnected from affected sockets and the socket is left in the unconnected mode. No leaks can occur when a gas appliance remains connected to the socket outlet. Consumers who believe they have one of the affected gas sockets installed in their premises are therefore advised to plug appliances into the sockets pending further action and write to the address below for further information:

Customer Services, P.O. Box 853,
Mordialloc, Victoria, 3195
or phone 008 806 191

Contact will thereafter be made with the consumer and steps will be taken to remedy any possible danger. These steps may include the provision of a safety plug to be inserted into the socket when not in use.

Travel money

HOLIDAY SWALLOWS MAN'S CARD

HAVING READ our story on holiday money (CHOICE, May 1992), a reader got in touch to tell us what befell him during a recent visit to Paris.

Using his VISA card to obtain cash from an automatic teller machine (ATM) he was surprised (but not daunted) when the ATM swallowed his card. As the ATM was attached to a bank office he went inside and gave his story.

The response was not very satisfactory: he was told that for security reasons they only opened the ATM once daily — and had already done so that day. He would have to come back the next day to collect his card!

Australian banks can be more flexible, but they will not open the ATM if there's a problem with your account or it would be a potential security risk to do so.

Advertising

SELLING SUPER FOR ALL IT'S WORTH

IF YOU watch television you'll know how hard the banks and insurance companies are trying to sell their superannuation funds. The rules and tax breaks are complex to follow, so it's all the more important for promoters to refrain from the hard sell and the all-too-neat advertising slogan.

As an example, the ANZ bank has been sending letters to customers promoting a new superannuation product. This is how the letter is headed:

"Now you can save for your future with all the control and convenience of a normal savings account."

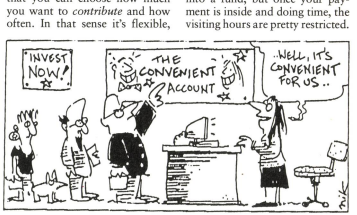
The comparison with a "normal savings account" is a potent one. The point of the new account is that you can choose how much you want to *contribute* and how often. In that sense it's flexible, particularly when compared with older-style superannuation plans.

However, as the letter goes on to say, "Naturally, because it's superannuation, withdrawals are restricted until retirement". You can't get at your money until you retire — and this could be a wait of maybe 40 years. In a very real sense superannuation is not a flexible investment.

After giving consumers the short warning about the restriction until retirement, the letter moves quickly to reinforce the idea of flexibility, with this heading:

"Total convenience and absolute control".

This promotion lacks balance: it may be easy to get your money into a fund, but once your payment is inside and doing time, the visiting hours are pretty restricted.



CHOICE IN ACTION

DRAWING A BLANK

What happens when the packaging of a pesticide product warns you to read the instructions inside carefully, but when you open the packet, you find they're illegible?

THIS IS a tale about a well-informed consumer in action. Ms F of the south coast of NSW went to her local nursery looking for protein hydrolysate, a compound used in traps for fruit flies.

This substance is usually used in conjunction with an insecticide: it acts as a bait, luring the fruit fly to the poison.

The salesman at her local nursery didn't think hydrolysate was sold on its own, but pointed out that he did stock CHEMSPRAY fruit fly kits which contained both a protein hydrolysate and Malathon, an organophosphate insecticide. (Also known as 'Maldison' and 'Malathion', it's one of the less toxic organophosphates, but is a poison nonetheless, and needs to be used with caution.)

After looking at the packet, our subscriber asked to see the directions inside it, as those on the outside were quite sparse. Also, the outside label advised that the enclosed leaflet should be read thoroughly.

The salesman commented that the instructions on the inside were "a bit hard to read", and when they opened the packet Ms F could see what he meant! Half the print had disappeared and it looked as though the sheet had been photocopied many times; it was mostly unreadable.

Our subscriber was not going to accept this type of irresponsible approach to the use of a toxic chemical — even if it was less toxic than some. So she wrote to Chemspray (sending a copy to CHOICE), telling them just how unimpressed she was with their lack of clear information. She asked them to fix the problem and provide all their selling outlets with legible information. As Ms F said in her letter, "People are careless about reading directions anyway — if it is made difficult for them to read directions, there is more likelihood they will not even try".

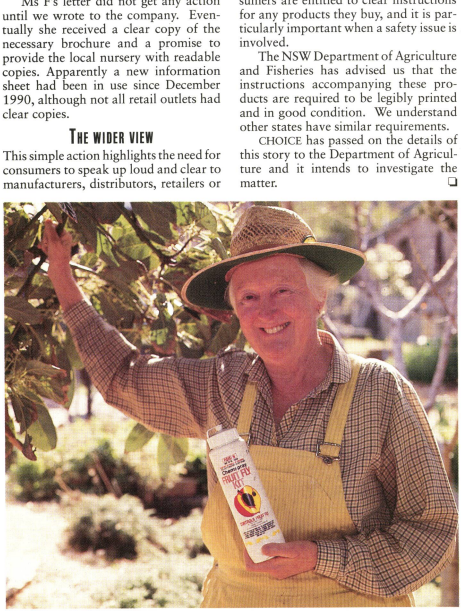
Ms F's letter did not get any action until we wrote to the company. Eventually she received a clear copy of the necessary brochure and a promise to provide the local nursery with readable copies. Apparently a new information sheet had been in use since December 1990, although not all retail outlets had clear copies.

THE WIDER VIEW

This simple action highlights the need for consumers to speak up loud and clear to manufacturers, distributors, retailers or their professional associations when they come across such a situation. Consumers are entitled to clear instructions for any products they buy, and it is particularly important when a safety issue is involved.

The NSW Department of Agriculture and Fisheries has advised us that the instructions accompanying these products are required to be legibly printed and in good condition. We understand other states have similar requirements.

CHOICE has passed on the details of this story to the Department of Agriculture and it intends to investigate the matter. ❑



MICROSHELL BICYCLE HELMETS

From a reader's letter to a cycling magazine:

"[Your] article on helmets was, as stated, a 'subjective comparison of helmets', ie totally unscientific. While accepting that all the helmets met the SAA Standard, inevitably some will meet the Standard better than others and I for one would like to know which are the better ones..."

That's where CHOICE comes in.

PEOPLE aren't born with a wish to wear safety gear. Whether it's eye protection or ear muffs when using power tools, safety belts in the car or a bike helmet, there are barriers of comfort, cost and image to overcome. Well, new laws have finally settled into place and if you get on a bike in a public place you must wear a helmet which meets the necessary requirements of the Australian Standard.

Helmet types

There are three types of helmet for bicycle riders on the road:

■ **Hard shell:** a hard, thick plastic layer has been fastened over the outside of an inner liner of soft expanded polystyrene foam. Though the outer plastic shell offers a degree of protection for the helmet against knocks, abrasions and weathering, it actually contributes little or nothing to safety. It's the polystyrene foam inner shell which absorbs the impact and distributes the force of the collision. Probably the best sort for children as their helmets are bound to get knocked around the school yard.

■ **Soft shell:** hard shell helmets are relatively heavy to wear — this led to the development and popularity of helmets without the outer shell. Typically there is a foam inner shell with a coloured lycra cover. Though soft shell helmets have performed just as well as hard shells in the safety tests of the Australian Standard, they damage easily.

■ **Microshell:** here's the compromise between the other two. On the outside of the inner foam shell is a layer of material offering a modest degree of protection for the helmet itself. This may range from a thin outer shell of hard plastic to what looks like a thick layer of paint applied directly to the foam inner shell. The definition of microshell is interpreted very widely by manufacturers, so check the helmet itself to see you're getting the features you want.

On this occasion we put 17 microshell helmets (in adult sizes) through their paces and ranked them on their safety performance balanced by the impressions of a panel of 15 cyclists who trialled each one (because if you won't wear it, does it matter how good it is?).

We chose microshell helmets as this is the area of greatest sales: an estimated 50% of all bicycle helmets sold.

Bash and smash

Helmets were subjected to a barrage of tests adapted from the Australian Standard, along with our own ventilation tests and a user trial:

■ How effectively does the helmet reduce the shock to the skull? The impact energy attenuation test measures this.

■ How well does the helmet distribute

SUDDEN IMPACT

TWELVE-YEAR-OLD Philip Fuary was riding his bike fast down a steep hill near home. At the bottom he misjudged a turn and rode over the silent cop. Out-of-control, Philip drove into the gutter, flew over the handlebars, bounced off the grassy bank and speared into the brick wall of a house.

As his outstretched hands hit the wall his two wrists broke. His head hit next and the impact shot down his spine, compressing vertebrae and breaking ribs.

It was two weeks before Philip was up and walking again. Now his arms are out of plaster and he's back at school. Doctors say Philip owes his life to this helmet. It was a Christmas present — and he never enjoyed wearing it.

the force of a localised impact over a larger area? The load distribution test gives the answer.

■ Will the chin straps stretch or slide and thereby let the helmet slip off? Will the helmet come off your head in an accident? We applied force in different ways to each helmet's security system and tried to tug the helmet off.

■ Does the helmet obstruct the rider's vision to the side? We checked peripheral vision.

■ How effectively does the helmet dissipate heat from the head? We went in search of the coolest and best-ventilated helmets.

■ In addition, our trial included 15 cyclists, male and female and aged from 20 to 32. They took each helmet through a monitored riding routine in the lab and awarded scores for comfort (heat, sweat, itchiness), ease of adjustment (fastening, unfastening and adjusting straps) and ventilation, as well as a final overall impression. Comments were also recorded.

Further details of tests accompany the table on pages 12 and 13.

Fit

The right fit is the number one issue when choosing a helmet. A poorly fitting helmet may slip off in an accident, or concentrate the force of an impact onto a smaller area of the skull (see diagram).

Extra soft padding should not be used to compensate for the wrong size — it's for smoothing out the rough spots and general reasons of comfort. This kind of padding has no shock-absorbing value and if it's too thick (more than one centimetre in depth) it gives you the wrong idea about fit.

It should not be offered by helmet manufacturers at all — but it's not merely offered, it's actually promoted. Here's one example:

"If it feels too loose, replace sizing pads with thicker pads supplied," read the instructions for the ROSEBANK VOLANTE.

Indeed at least two manufacturers (FLASH TEC and HEADGEAR) appear to have created extra sizes in some of their product ranges *artificially*, through the use of thick padding of this kind.

Further limiting the field of choice are those which clearly offer only a single size of helmet shell: AVANTI SPORT and GIESSEGI TRADE TEAM.

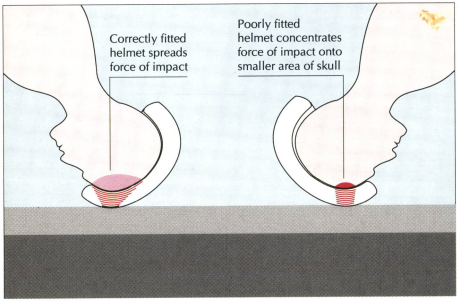
Hot-headed

While fastening, fit and impact protection are the big safety issues, heat under the helmet raises the most controversy. It's not an easy thing to measure with any certainty, however. Even if we could, the individual cyclist's perception and attitude to ventilation makes it harder still to rate a bunch of helmets.

We approached the problem in two ways. First we sent the helmets to a wind tunnel for testing — a dummy's head was fitted with heat coils to measure heat loss from the head (under wind conditions of 50 km/hour).

While the difference in results between the best and worst helmets was only of the order of one degree Celsius, the best performers were BELL IMAGE II, HEADWAY 701 SNELL, LUCCI MET SCATTO TECH and SCOTT ASPEN RAZOR.

Meanwhile, we also asked our 15 trialists to record their impressions of each helmet's thermal comfort. After riding on a set routine at increasing speed they would stop for two minutes, allowing heat to build in the absence of the cooling effect of wind.


Correctly fitted helmet spreads force of impact
Poorly fitted helmet concentrates force of impact onto smaller area of skull

STATISTICS, YES: BUT WHAT DO THEY MEAN?

COMPREHENSIVE national statistics about bicycle helmet use are not yet available. However, there are indications that more of us are wearing bicycle helmets and fewer riders are being killed or injured.

For example, in NSW, where compulsory helmet laws for adults came into force on January 1, 1991, road safety statistics tell us 10 cyclists were killed and 289 seriously injured that year. This compares favourably with 20 killed and 349 seriously injured in 1990, and with 19 and 325 respectively in 1989.

In Victoria, the number of head injuries for children under 15 years of age fell from 87 in the year prior to the new laws, to 52 in the following 12 months — a 40% reduction. A survey carried out by the Public and Environmental Health Service of the SA Health Commission found a drop in head injuries of 45% for that state, comparing the first quarter following introduction of helmet laws with the same quarter in four previous years.

The laws are an unqualified success! Or are other factors at work too?

A recent survey of law compliance among cyclists in NSW (Michael Waller, University of Sydney, 1992) noted that although the proportion of cyclists wearing a helmet had increased there was evidence to suggest cyclist numbers had dropped sharply.

Observing cyclists in the same sites (near schools and recreational areas) and at the same times over 1990, 1991 and 1992, the author of the study concluded:

"The numbers of cyclists observed have decreased across age groups and in both the rural centres and Sydney ... Children: numbers have decreased by 36%, Adults: numbers have decreased by 14%."

More work is needed to understand the full effect of the helmet laws.

And are police enforcing the law? We checked with police in NSW and SA. Between January 1991 and June 1992, NSW police issued 17 021 infringement notices to cyclists not wearing an approved helmet. Police in SA quote an enforcement blitz across the state in September 1991. Over a period of seven days, 170 cautions and 21 infringement notices were issued to children under 16, and 181 cautions and 150 infringement notices to adults (16 and over).

What's interesting is that the trialists have ranked the helmets for thermal comfort in a significantly different order to the results of the wind tunnel tests. Those favoured by the trialists were HEADGEAR AIR STRIKE, HEADWAY 601 and ROSEBANK MICROLITE.

Which version is right? Maybe your perceptions — or even the thickness of your hair or where you position the comfort pads — affect the results.

Though the dilemma remains — and we can't answer it — the assessments nevertheless remain useful. If, as an experienced wearer you can't find any personal satisfaction, and heat under the helmet troubles you greatly, use both lists to narrow your search for a cooler helmet. Our results can't give you the final answer but they can point you in the right direction among all the models tested.

Security: keeping it on your head

The Australian Standard provides several tests which attempt to assess whether the helmet will stay on the head during an impact. For one, the 'retention system' (meaning straps and how they are fastened to the helmet shell) is tested for how far it stretches under a standard force. If the stretch exceeds 25 mm the system fails. Here all passed.

In the second test a helmet is placed over a smooth dummy headform and a force equivalent to a 5 kg weight tugs the helmet backwards and down. If the helmet shifts so as to expose the forehead, it fails. All passed — so far so good.

We compared these results with a test using our panel of cyclists. Each trialist found the helmet size which best fitted, then a 5 kg weight was suspended from the front rim across the top and down the back. Again, if the forehead was exposed the helmet failed. This time, however, even the best-performing helmets exposed the heads of most trialists.

Does human hair make it more likely a helmet will slip off? Is a smooth headform a fair approximation of real life? These are questions raised by our results and which warrant further research to ensure the Standard tests helmets in a meaningful way.

Chin strap slip

It caught our attention that many helmets can slide along their chin straps — the straps are not fixed in place but are simply threaded through the helmet. This means it's easier for such a helmet to move from side to side on the wearer's head. There's a concern that this 'floating' design of chin strap may expose more of the head during impact. The product profiles tell you which helmets have this design.

PROFILES

In rank order except where equal (see table). Price range as found in an Australia-wide survey in August 1992.

BELL IMAGE II

ATOM AIRMAX

OGK HARD PERFORMANCE SH 5000

ROSEBANK VOLANTE VE 2001

AVANTI LITEC

HEADGEAR ULTRA COMP

HEADWAY 601 SNELL

SCOTT ASPEN BOXER

Bell image II

Price: $65/$99
Shell sizes available: 2
Verdict
Outstanding performance in technical tests, bu straps stretched more than others.
Comments
- Good results from wind tunnel (ventilation tests.
- Straps were rated fiddly and hard to adjust and fasten by trialists.
- Unusual clasp design. Clasp on one sample didn't work: check for this when buying.

Atom airmax

Price: $49/$70
Shell sizes available: 4
Verdict
Above-average helmet.
Comments
- Fairly sweaty.
- Straps can only be adjusted on one side.
- Straps slide through helmet.
- Some velcro came off the padding making attachment impossible in places (re-gluing may damage helmet shell).

Ogk hard performance sh 5000

Price: $40/$60
Shell sizes available: 2
Verdict
Good technical performance; not sweaty according to trialists.
Comments
- Clasp easy to use.
- Straps stretched more than others (21 mm).

Rosebank volante ve 2001

Price: $65/$89
Shell sizes available: 3
Verdict
Good technical performance and well-liked by the trialists.
Comments
- Fairly sweaty.
- Straps hard to adjust — clasp not popular.

Avanti litec

Price: $29/$50
Shell sizes available: 2
Verdict
Easy to use, but only average performance.
Comments
- Straps stretched more than most.
- Easy to adjust padding and straps.

Headgear ultra comp

Price: $40/$59
Shell sizes available: 1 — relies on soft padding to create size range.
Verdict
Good performer but trialists found it hot to wear.
Comments
- Straps slide through helmet.

Headway 601 Snell

Price: $35/$65
Shell sizes available: 7
Verdict
Though only an average performer in the technical tests it was the helmet which most impressed the trialists. It comes with a lycra cover and is virtually shell-less underneath.
Comments
- Trialists found it wasn't hot and sweaty, but some rated fastening and unfastening as difficult.

Scott Aspen Boxer

Price: $65/$69
Shell sizes available: 3
Verdict
Strong helmet with little to fault, but trialists were not impressed.
Comments
- Clasp rated easy to fasten by trialists.
- Straps slide through helmet.

Flash Tec LX1000

Price: $32/$39
Shell sizes available: 3 sizes claimed, but only 1 size as measured. Relies on soft padding to create size range.
Verdict
Average performer.
Comments
- Trialists rated its ventilation as poor and commented it felt heavy on their heads.
- Straps slide through helmet.

Headway 701 Snell

Price: $59/$79
Shell sizes available: 7
Verdict
Mixed performance but well-liked and worth checking out if ventilation is a major concern (see main text).
Comments
- Best performer in wind tunnel (ventilation) tests.
- Unusual clasp rated as hard to fasten by some trialists.

Scott Aspen Katana

Price: $45/$62
Shell sizes available: 3
Verdict
Mixed performance but well-liked by trialists.
Comments
- Straps slide through helmet.

Giessegi Trade Team

Price: $53/$80
Shell sizes available: 1
Verdict
Mixed performance.
Comments
- Straps were easy to adjust.
- Padding was difficult to adjust.
- Straps slide through helmet.

Rosebank Microlite

Price: $45/$60
Shell sizes available: 3
Verdict
Well-liked by trialists, who felt ventilation was good; scored below average for strength tests.
Comments
- Trialists rated ventilation as good.
- Padding easy to adjust.

Scott Aspen Razor

Price: $35/$59
Shell sizes available: 3
Verdict
Unpopular with the trialists — the foam moulding at the back was uncomfortable for some and put pressure on the back of the wearer's head. It was the heaviest helmet in our test — and appears to be a hardshell though sold as microshell.
Comments
- Trialists found it hot and itchy to wear.
- Excessively thick padding (15 mm).

Avanti Sport

Price: $45
Shell sizes available: 1
Verdict
Mixed performance; did not impress the trialists.
Comments
- Clasp easy to fasten and unfasten.
- Strap stretched more than most.
- Chin strap irritated some trialists under the chin and behind the ears.

Headgear Air Strike

Price: $49/$89
Shell sizes available: 1 size as measured; other sizes created by soft padding.
Verdict
A light helmet to wear and trialists felt ventilation was good.
Comments
- Padding was difficult to adjust.
- Straps slide through helmet.

Lucci Met Scatto Tech

Price: $60/$80
Shell sizes available: 2 sizes claimed, but the medium and large sizes we bought appeared to have the same size shell.
Verdict
It may pass the Standard, but you can buy better than this; it did not impress the trialists either.
Comments
- Of all helmets tested for this report, this one gave the worst performance in impact test and load distribution test.
- Worst strap elongation (24 mm — a borderline pass).

FLASH TEC LX1000

HEADWAY 701 SNELL

SCOTT ASPEN KATANA

GIESSEGI TRADE TEAM

ROSEBANK MICROLITE

SCOTT ASPEN RAZOR

AVANTI SPORT

HEADGEAR AIR STRIKE

LUCCI MET SCATTO TECH

MICROSHELL BICYCLE HELMETS

	Brand/model (in rank order, alphabetical where scores equal)	Manufacturer/ distributor	Origin	Price ($)*	No. of head shell sizes	Relative weight	TRIALISTS' RATINGS 1 Ease of adjustment**	2 Comfort**	3
	BELL Image II	Hanley Trading	US	65/99	2	heavier	60	80	
	ATOM Airmax	Atom Helmets	Australia	49/70	4	lighter	80	80	
equal	**OGK** Hard Performance SH 5000	Sime Cycle	Japan	40/60	2	average	70	80	
	ROSEBANK Volante VE 2001	Rosebank Products	Australia	65/89	3	average	60	80	
	AVANTI Litec	Sheppard Industries	NZ	29/50	2	heavier	90	90	
equal	**HEADGEAR** Ultra Comp	Headgear	Australia	40/59	1	heavier	80	80	
	HEADWAY 601 Snell	Headway Helmets	Australia	35/65	7	average	50	90	
	SCOTT ASPEN Boxer	Scott Aspen	Australia	65/69	3	lighter	80	80	
	FLASH TEC LX1000	Flash Tec	Australia	32/39	1	lighter	80	80	
equal	**HEADWAY** 701 Snell	Headway Helmets	Australia	59/79	7	average	50	80	
	SCOTT ASPEN Katana	Scott Aspen	Australia	45/62	3	average	80	80	
	GIESSEGI Trade Team	CWC Imports	Australia	53/80	1	average	80	80	
equal	**ROSEBANK** Microlite	Rosebank Products	Australia	45/60	3	lighter	70	90	
	SCOTT ASPEN Razor	Scott Aspen	Australia	35/59	3	heavier	80	70	
equal	**AVANTI** Sport	Sheppard Industries	NZ	45	1	heavier	80	80	
	HEADGEAR Air Strike	Headgear	Australia	49/89	1	average	80	90	
	LUCCI Met Scatto Tech	Cycle Circuit	Italy	60/80	1 *(A)*	lighter	80	80	

* Price range as found in an Australia-wide survey in August 1992. ** Scores rounded to nearest 10.
(A) 2 claimed, see profiles.

We believe manufacturers should anchor the straps to the helmet so as to prevent the sliding action.

On another point, one sample of the BELL IMAGE II had a chin strap clasp which did not lock in place: there seemed to be a fault in the shape of the mould for this plastic part. One of our staff has a BELL IMAGE *two years' old* with the same fault.

Conclusions

All of the 17 microshell helmets tested were considered acceptable. Our rankings allow you to find the best of a good bunch.

However, you may have to go a fair way down the list before you find a helmet which fits your head perfectly. This should not worry you — a high-ranking helmet which doesn't fit well is much more of a safety problem!

Ventilation and thermal comfort remain important areas for future research. Now that governments are compelling consumers to wear bicycle helmets even more effort should be devoted to research into more comfortable designs.

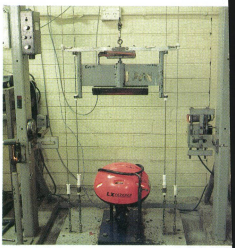
Similarly, the issue of fit calls for government intervention; manufacturers should not be allowed to get away with selling helmets in a range of sizes artificially created by the use of ever-thicker soft padding. Standards Australia should give consideration to setting a maximum thickness for such padding or otherwise more closely regulating helmet sizes.

Finally, remember to throw away or destroy any helmet which has been in an accident where it received a solid knock — the protective foam will have compressed and weakened.

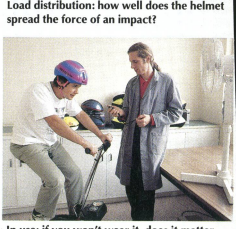
What to buy

Brand/model(in rank order)	Price ($)*
BELL Image II	65/99
ATOM Airmax	49/70
equal **OGK** Hard Performance SH5000	40/60
ROSEBANK Volante VE 2001	65/89
AVANTI Litec	29/50
equal **HEADGEAR** Ultra Comp	40/59
HEADWAY 601 Snell	35/65
SCOTT ASPEN Boxer	65/69
FLASH TEC LX1000	32/39
equal **HEADWAY** 701 Snell	59/79
SCOTT ASPEN Katana	45/62
GIESSEGI Trade Team	53/80
equal **ROSEBANK** Microlite	45/60
SCOTT ASPEN Razor	35/59
equal **AVANTI** Sport	45
HEADGEAR Air Strike	49/89
LUCCI Met Scatto Tech	60/80

* Price range as found in an Australia-wide survey in August 1992.



Load distribution: how well does the helmet spread the force of an impact?



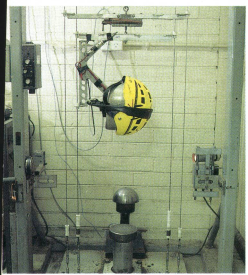
In use: if you won't wear it, does it matter how good it is?

	IMPACT TESTS	
4	5	6
Overall impression	Energy attenuation	Load distribution
ove average	above average	above average
average	above average	above average
ove average	above average	average
ove average	average	above average
ove average	average	average
average	above average	average
ove average	average	average
low average	above average	above average
average	average	average
ove average	below average	average
ove average	average	below average
average	average	below average
ove average	below average	below average
low average	average	average
low average	below average	average
average	below average	below average
low average	below average	below average

Models not tested

This test was only of microshell road helmets, not hard shells or no-shell helmets.

The **Alpine Micro** was not yet available when testing began. **Pro Contour** and **Pro Tri-Pro** were only available in Melbourne. Others with limited availability were **Adura LT650/LT850, Avanzi, OGK SH6000** and **Pro Contour RKR**. **Giro Air Attack, Hammerhead, Prolight Comp** and **Uvex Airtech RS** were out of the price range of this test. The **MT2000** was discontinued.



Energy attenuation: cushioning the brain from a sudden stop.

Peripheral vision

A helmet should give the user unobstructed vision for not less than 105° on each side. All helmets passed this test.

1 Relative weight

We weighed each helmet in the range of sizes available, averaged the weights and compared the results with the average of all helmets tested for this report. Those in the range 263–290 g were rated 'average'.

Trialists' ratings

2 Ease of adjustment

Trialists scored each helmet for ease of adjustment, fastening and unfastening of the straps and clip.

3 Comfort

Trialists scored each helmet for how hot, sweaty or itchy it became during and after use on a cycling routine.

4 Overall impression

Our 15 trialists performed a riding routine with each helmet (at a constant room temperature of 21°C) and were asked to score them on the basis of their overall impression. Ratings are relative to the average of all helmets tested.

Impact tests

5 Energy attenuation

The helmet and dummy headform were dropped from a height of 1.5 metres onto a flat steel anvil to see how well the helmet cushioned the brain from sudden slowing of movement due to impact. All helmets performed well in this test, though some performed better than others.

6 Load distribution

How well does the helmet distribute the force of an impact, thereby reducing the likelihood of skull fracture or bending? An anvil — simulating the shape of the kerb or a car bumper — was dropped 1 metre onto four different impact sites per helmet. The helmets were wet with water before this test as this is the condition under which helmets are most likely to fail. All helmets performed well in this test, though some performed better than others.

Ranking

Helmets were ranked according to energy attenuation, load distribution and trialists' overall impression. Each factor was given equal weighting.

Getting it on

HAVING READ this report, here is a guide to finding the right helmet. It must be fitted personally, so don't leave the kids at home if it's for them.

■ Check for the Standards Mark (see below). While all helmets must comply with the Australian Standard (look for a marking confirming the helmet meets Australian Standard 2063.2-1990), it's not always necessary for the helmet to carry the sticker. However, most widely available brands do have this and it's a good guide.

Australian Standard

■ Think first about the internal shape of the helmet. Take out all removable padding (it is usually attached by velcro). Does the helmet shell fit your head shape?

■ Put back the pads, avoiding any thicker than 1 cm. Use them for comfort, not for fit.

■ Adjust the chin straps so they hold the helmet firmly in place. It should be possible to adjust them forward and backward as well as to loosen or tighten them.

■ The helmet should sit 1–1.5 cm above the eyebrows.

■ Have someone tug the helmet forwards and backwards: it must stay on, without sliding up or down and exposing the forehead or back of the skull. Can you twist the helmet around on your head? If so, don't buy it.

■ If you can stick your fingers up between the rim and your head the helmet may be too big for you.

■ If you want help and can't get it, walk out of the shop and go elsewhere. Remember a bicycle helmet is a safety item; it's not like buying a pair of jeans. And a discount is false economy if the helmet doesn't fit.

Figures rele

GDP ... current account deficit ... seasonal adjustment ... J-curve ... you've probably heard these terms a thousand times — but what do they mean to you? If it's not much, you're not alone.

EACH MONTH the Australian Bureau of Statistics (ABS) issues a series of figures about the economy. The politicians then argue about their interpretation and what should be done in response. The problem for the rest of us is that sometimes it's not even clear what the figures refer to, let alone what they mean.

Among the statistics released are those which have come to be called **key economic indicators**. The press often picks out figures from these indicators — such as the number of building approvals or new car registrations — which point to levels of specific economic activity (spending) in Australia.

But the main indicators deal with the broader state of the economy. The first part of this article looks at some of these, while the second part explains some of the more commonly used jargon.

GDP: how much do we make?

Gross Domestic Product (GDP) is defined as the value of the goods and services produced in Australia within a given period (eg a month). It includes everything from mined opals, to insurance and government services like education.

There are three ways of measuring GDP:

- Measure production.
- Measure income generated by production: the value of wages and salaries, indirect taxes paid by companies and company profits.
- Measure expenditure: everything spent by families, companies and government, plus foreign spending on Australian exports, minus our spending on imports.

Not surprisingly, measuring the GDP three ways gives three different answers — and when a politician gives a GDP figure it's usually a reconciliation of the last two measures. The figures are often revised after publication because there are estimates involved in their compilation.

What's important is the *real change* in the GDP — taking into account **inflation** (see below) — because then we know whether the economy is growing or not. Economic growth is defined as growth in GDP.

During the 1980s the GDP grew each year by an average of 3% in real terms (ie after allowing for inflation). However, in 1990–91 it fell by 0.9% and since then has been fairly static. A **recession** is defined as two consecutive quarters of falling 'real' GDP.

CPI: how much do things cost?

When people talk about inflation they generally refer to the overall change in price of a basket of goods and services bought by households — known as the **consumer price index** (CPI). This index includes more than just groceries; it also looks at things like health care, housing costs and transport.

However, there are lots of other indexes used too. These measure inflation in, for example, wages, prices of products from a particular industry or house prices.

Even the CPI is broken down by area of expenditure — in the year to March 1992 'health and personal care' costs were far outstripping other areas with a price increase of 13%, compared with 'housing' costs which actually dropped 4.8%.

The statistics in this report are available from the Australian Bureau of Statistics. The ABS issues its report on Australian Economic Indicators at the beginning of each month (dated the month before). Currently this costs $26 and is available from ABS offices in capital cities.

ased today...

Unemployment: who's not working?

This is a measure of the proportion of the labour force 'acknowledged' to be out of work.

The figures each month are based on a survey of less than 1% of homes. With a few adjustments, working-aged people count as 'employed' if they worked at least one hour during the week of the survey, and as 'unemployed' only if they were unemployed and actively looking for work (as well as available for work) in that week — so, for example, it doesn't include people who are so discouraged that they've given up looking for work.

Even if the unemployment rate (currently around 11%) goes up, it doesn't necessarily mean there are less people working. For example, although the unemployment rate increased 1% from May 1991 to May 1992, there were actually 51 300 more people in work than a year before. It's just that there were more people looking too.

The ABS also measures the **participation rate** which is the proportion of people who are either working or looking for work, compared to the whole population. Interestingly, this rate actually fell by 0.6% in the year to May 1992.

Balance of payments: how deep in the red?

The **balance of payments** is made up of two items (which are 'balanced' each year):

■ The **current account** keeps track of the value of Australian exports of goods and services, and of imported goods and services that we buy here. If the value of exports exceeds that of imports there's a **current account surplus**; if imports exceed exports it's a **current account deficit**.

The current account is further split between goods and services. Goods exported minus goods imported is known as the **balance of trade**. And contrary to popular perception, in 1990-91 Australia had an overall trade surplus of $2.9 billion. It's set to stay positive this year, too.

We do less well, however, in the area of services, including things like tourism, insurance, profit transfers by Australian and foreign companies into and out of Australia, freight charges and interest payments.

In 1990-91 we had an overall current account deficit of almost $16 billion.

■ The **capital account** tracks the flow of investment into and out of Australia. As with company accounting, an investment here by a US company would show as positive, and investment abroad by an Australian company as negative.

If there's a current account deficit we need to borrow money to cover it or sell foreign assets — this shows as a capital account surplus, but clearly isn't necessarily a good thing.

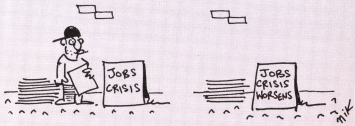
Micro and macro-economics

Micro-economics is concerned with how individual consumers and businesses operate. It attempts to explain the prices charged and paid in terms of the **demand** for those goods and services and their availability (**supply**).

Macro-economics deals with the functioning of the whole economy, looking at such things as GDP, consumption, investment and employment.

A government's **micro-economic policy** generally aims to increase productivity (and reduce costs). So, for example, making cheaper and more efficient waterfront services available could be part of a micro-economic reform package because this would reduce one of the costs which many businesses incur, thus helping to make their products cheaper.

Macro-economic policy aims to achieve objectives such as full employment, balance of payments equilibrium, and low inflation using such economic tools as fiscal and monetary policies (see below).



Fiscal and monetary policy

Fiscal (or budgetary) policy uses government spending and taxes to influence the level of business activity. If the government spends more than it takes in taxes (ie runs a **budget deficit**) it may be able to encourage economic growth.

In principle, this is simple. For example, increasing government spending (on roads, say), but not increasing taxation, will mean people and firms are earning the extra money the government has spent. With this greater amount of income in the economy, people have more to spend, so there's more demand for goods and services, which in turn creates jobs (and so more demand and more jobs). However, there could be inflationary side effects (see *Overheated economies* overleaf).

Using **monetary policy**, a government influences the **money supply** to affect the level of economic activity (attempting to increase it, or to control inflation, say). The primary objective is usually to balance the amount of money in the economy with the amount of goods and services available to be bought. In Australia monetary policy is mainly implemented through the Reserve Bank by adjusting **interest rates**.

Money supply is a technical term which basically includes currency and bank deposits.

Overheated economies and inflationary spirals

These are two of the few things our economy isn't suffering from at the moment, but they have been of concern in the past. Put simply, if demand for goods and services grows too much (overheats) prices go up. This pushes up the **CPI**, and because the cost of living is rising people expect to earn more too. This drives up the cost of Australian production. Prices again go up — and so on, round the inflationary spiral.

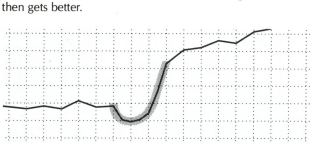
Seasonal adjustment

Monthly or quarterly economic indicators are often **seasonally adjusted**. This is a mathematical way of adjusting data measured over a period of time, so you can see trends. For example, unemployment figures go up when there's a rush of school leavers entering the job market — and adjusting the figures for the 'season' allows you to tell whether the increase is more, or less, than expected.

So what is a J-curve?

A fine example of the use of economic jargon is the **J-curve**. Most people will have heard the term, but in a recent radio talk show people were asked what it meant — and even those who thought they knew were often wrong.

Mr Keating first baffled the public with references to the J-curve in early 1985. The term refers to the belief that after a fall in the value of the dollar, the trade deficit gets worse and then gets better.



The idea is that after a depreciation in the dollar, the price of imports initially goes up and the price of exports goes down. As long as quantities of both stay the same, this leads to a still worse balance of trade. But after a while Australia responds to the new situation by buying fewer imports, and selling more overseas (because Australian goods are now cheaper abroad) — leading to an improved balance of trade. Got it?

Tariff reform

Tariffs are taxes imposed on imported goods which, together with quotas on imports, restrict foreign access to the Australian market. At the moment, moves to get rid of them as part of a micro-economic reform process are the subject of heated debate.

Local producers on one side want as much protection as they can get — believing it will protect employment in their industry and that nobody suffers except foreigners who can't sell their goods to us. On the other side are those who see tariffs creating expensive markets for Australian consumers who pay more than they need to support industries which aren't competitive on world markets.

Economic modelling

This is often a flash word for drawing a graph from which economists and politicians attempt to predict what's going to happen. The simplest form of model is a graph which shows the relationship existing between two or more variables (eg unemployment and the international value of the dollar).

A model can help predict the effects of a change in one thing on others. But it's important to remember that however sophisticated and comprehensive a model is, it couldn't include everything, and assumptions (guesses) about effects have been made which won't necessarily turn out to be true.

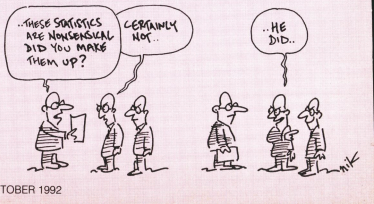
Economic rationalism

This is a new term for an old idea, in which it is assumed that the 'free market' will, if left to its own devices, produce the best outcomes for society in economic terms.

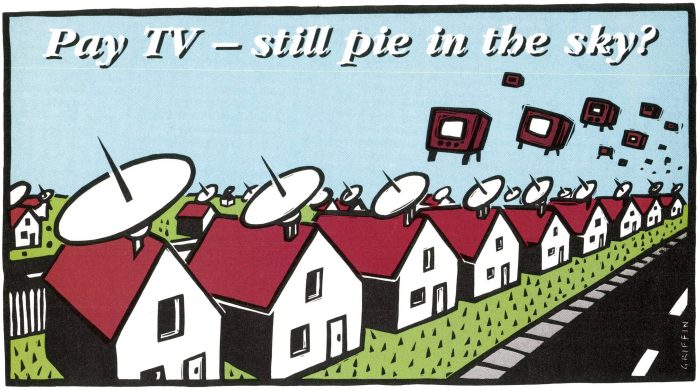
Economic rationalists encourage less state control, less intervention and less regulation. So, for example, reduction in the influence of unions and in social services are likely to be among the aims.

What does it all mean?

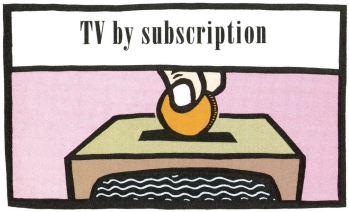
Well now you know. Next time you hear a reporter say "Figures released today indicate blah blah blah", you'll understand perfectly well that we're on the 'up' part of the J-curve, coming out of a seasonally adjusted inflationary spiral, achieved through radical fiscal policies and far-reaching micro-economic reforms. Of course. ❑



Pay TV – still pie in the sky?



Pay TV looks like reaching your screens by mid-1994 and some say in 15 to 20 years it could be the dominant form of television. Its promise is better viewing — more programs, different movies, more sport, more choice. But as the song goes, "57 channels and nothing on" — more is not necessarily better. What's it all about?



PAY TV means paying for extra channels that are piped onto your screen via various technological wonders. In contrast to 'free-to-air' television, which is funded either by the government (like the ABC) or by advertising, a pay TV channel is funded by its viewers.

And since it's not chasing ever-higher audience ratings for each program as a lure for advertisers, it can afford a more specialised approach — not attempting to please all the people all of the time. Its staples are sport, movies and news, and the repeat is a well-entrenched feature — particularly with movies. Marketing efforts will try and persuade you to see this as "multiple opportunity viewing", but you might not agree.

Some technologies allow a 'pay per view' service — usually offered as an extra to the basic package. Pay per view allows you to contact the pay TV station and request a particular program — say a live performance of Pavarotti or a boxing match — and pay a fee to receive it. You're offered a range of extra programs, but only pay for the ones you want to watch.

Contact could be by phone, or by the pay TV delivery system itself, and billing could be immediate by credit card or later. You might have to wait till the event is scheduled to go to air, or — if trials in the US result in a viable system — you may be able to request almost immediate viewing of pre-recorded programs.

Interactive systems allow two-way communication between subscriber and operator — so that a viewer can feed information back to the TV station as well as receive its signal. This opens up the potential for home shopping, electronic banking and educational interplay as well as audience participation in quiz and game shows.

Behind the screens

The organisational power behind pay TV takes a number of different forms. There is the provider of technology — an owner of a satellite for instance, or a communications company laying down cable; and there is the pay TV operator or licence

holder, a bit like a theatre manager, who decides what's going to be shown and gets it to the screens.

Then there's the program supplier, which produces material and sells it to the operator, be it a drama series, a documentary, or — as in the case of the US company, Cable Network News (CNN) — international news with a dash of local coverage.

Other links in the chain include companies which supply and install equipment in people's homes.

The boundaries between all these different parties are not set in concrete — a licence holder may decide to make some programs itself, for example, or control installation of consumer equipment through its own staff.

We have the technology...

The principles of pay TV are the same, whatever the technology. There is a delivery system — how the program signals get from the place of origin to your home; there is an encryption system, which codes the signal before transmitting it; a receiver at your home; and a device which unscrambles or decodes the signal for viewing.

The coding and decoding process is a security device which prevents people receiving pay TV without coughing up the dough to the licence holder. During certain periods, however, a company might transmit an uncoded or 'unscrambled' signal which any household can pick up, as a sample of its offerings.

The radio frequencies already used for free television — UHF (ultra high frequency) and VHF (very high frequency) — can be used to deliver pay TV, when used in conjunction with a coding and decoding system. But the two most common types of delivery system are satellite and cable; signals can also reach households through a combination of the two.

■ **Sky high**: The satellite system involves a signal transmitted from the program source to a satellite in the sky using SHF (super high frequency) radio waves and from there back down to earth where a dish will receive it. The signal must then be converted and decoded, by a decoder on top of your TV set, for instance, before it will relay *LA Law* or the like onto your screen. A single satellite can handle a number of channels (using a different 'transponder' for each), but it has a limited life-span of around 14 years.

■ **Ground work**: Cables, on the other hand, require an elaborate network linking the program source to homes. That is, each home has its own cable. Conventional coaxial cable can carry around 40 services and handle a limited amount of interactivity, while the more recently developed fibre optic cable can carry over 40 services at once — even more once digital technology is sufficiently developed.

Telecom Australia is working on a method of carrying a television signal on copper wires, using the telephone network already in place.

■ **Hybrid systems**: Satellites can transmit direct to your living room, as in DBS (Direct Broadcast Satellite). Or they can — as in hybrid systems — transmit to another delivery system such as cable.

■ **Digital compression**: In the future, digital technology should enable a single cable, or a single transponder on a satellite to carry from four to 10 programs simultaneously by compressing the signal.

■ **Microwave multi-point distribution**: Programs are transmitted from a number of antennae by microwave radio signals and received by a smaller antenna. Alternatively, a microwave system can be used to transmit to a restricted area — say, metropolitan Melbourne. At least one group in Australia has expressed an interest in using this technology for a 'narrowcasting' service — for Italian speakers in this case.

Top service (...please)

A successful pay TV operation has to please its viewers or its revenue will dry up — every link in the chain needs to operate smoothly.

A good deal for the viewer starts with well-thought-out approaches to technology — a common decoding system, for example, means consumers don't have to decide between competing technologies. It has its grounding in good programming, and it ends with efficient handling of both billing and complaints. Experience in other countries shows that, not really surprisingly, consumers expect a better deal from TV when they've paid for it directly.

Contentious issues

WERE IT NOT for the need for regulation (or at least for its perceived need in Australia) you might already be able to watch pay TV. But in a worst-case scenario, you might have fallen prey to a fly-by-night opportunist who sold you a dish and was never seen again. Or you might be brainwashed with propaganda from a media baron with control of 80% of the country's press.

Regulation — in theory at least — tries to predict some of the pitfalls, and plan ahead. If it doesn't get rid of all the sharks, it at least blunts their teeth. It also provides a benchmark against which to assess the performance of, in this case, TV operators — inviting complaints where the law is broken, and a starting point from which to improve legislation.

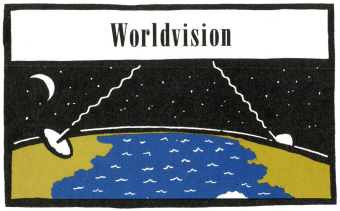
Regulation must tread the fine line between a free for all on the one hand, and stifling of business on the other. While most of the new regulatory environment for broadcasting is settled and through Parliament, the Broadcasting Services Bill stalled on pay TV. The following issues have been at the centre of the debate so far:

■ **Australian content:** Should pay TV have to show a minimum of Australian programming? If the answer's 'yes' — how much? The last word from the government was that 10% of the budget of an operator's drama channel should be spent on new Australian drama. This could release an additional $5 to $7 million into the Australian production industry, but the success of the scheme will depend on effective monitoring, and on the broadcasting authority's ability to obtain accurate financial information from the operator.

■ **Ownership:** Should there be restrictions on the stake a foreign company or person can hold? Should someone who already owns a lot of media in Australia be allowed to control more?

■ **Exclusivity of contract:** The start-up costs of pay TV are enormous, so the first group to take the plunge will expect some sort of protection in the form of a domestic monopoly. Potential bidders seemed at ease with the five years touted earlier on this year — but they weren't impressed by threats by the Prime Minister to cut it back to one year. From the subscriber's point of view, a balance has to be struck between a sufficiently long exclusivity period to ensure the operator will not go bust and an unneccesarily long monopoly which evades competition.

■ **Technology:** Senator Richardson wanted to limit the technology used to satellite. But many in the industry talk about cable as inevitable in the long run — should we wait for cable or go with Optus's satellite, even though it may have a life-span of only 14 years?



MOST WESTERN COUNTRIES now have pay TV up and running — with various degrees of success. Each system differs from the next, and what works in one country won't necessarily translate to another. But overseas experiences can give you a taste of what's to come — and maybe help you decide whether you want to jump on the bandwagon as soon as it passes your door — or perhaps wait to see exactly what's on offer before you part with your dollars.

US — TV junkies' dream?

It's come a long, long way since John Walson strung a cable from a mountain-top aerial to his shop in Mahanoy City in 1948 and sold televisions by the dozen on the strength of their superior picture quality. Locals wanted the sets, but they also wanted the better picture — which Mr Walson fixed up by connecting them to his antenna and cable, for a monthly fee.

Now channels such as Disney Channel, Showtime, The Fashion Channel and Cable News Network (CNN) vie for the viewer's dollar. We've even heard of a channel which splits the screen and shows four programs at once!

The technology used is either cable or satellite to cable. Optical fibre cable is also beginning to creep in, offering the chance for more two-way communication. Services (or systems as they are known) tend to be local monopolies and will offer a mixture of channels, provided by sometimes national companies. These channels may come in a series of packages starting with basic — which may cost very little and carry ads — becoming more elaborate and more costly the higher up the 'tiers' of packages you go. The more popular channels are sometimes only accessible in the more expensive packages.

Some systems seem to offer a mind-boggling number of channels, illustrated by comments such as: "In Arlington, Metrocable offers only 31 channels with basic service. In neighbouring Fairfax, Media General offers 77 channels." But as one industry expert pointed out to us, some of the channels on such systems are nothing more than the same programs staggered at 10-minute intervals — so if you can't catch the beginning of Batman 2 or 3 at 8 pm, and miss it at 8.10 too, you can always watch it at 8.20.

The existence of virtual monopolies in local areas has not produced a happy situation as far as handling customer complaints. The feeling is that operators have got away with poor service because consumers are stuck with the one system available in their area. Problems include 'outages' (when there's no picture), billing — and even simply getting through to the company with a query.

And is more better? According to a survey last year by the US consumer magazine, *Consumer Reports*, the "familiar gripe about TV — there's nothing to watch" is common with pay TV too: "One third of the readers with cable complained about insufficient variety."

Cross-Tasman cousins

Pay TV in New Zealand had a bumpy start — Sky Network Television charged too much, wasn't prepared for the thousands of calls from the public and left installation to outside contractors. But just over two years down the track, and with a change in ownership to boot, subscription numbers for the satellite service are topping 50 000.

Sky offers three channels — 24-hour news, a 12-hour sports channel and one for movies — which are gradually becoming available across the country. Auckland got the first bite of the cherry, followed by Wellington and Christchurch.

Once the station had been set up, satellite would enable 'instant' viewing in almost all of Australia. Access to cable, in contrast, would be slower, coming first to capital cities. But once in place it could carry a myriad of services, claims Telecom.

Cable could also be used to fill in for satellite in the few areas its beam will miss.

Arguments to use other technologies are already history. For instance, Anne Davies, director of the Communications Law Centre, says if the frequency bands in Sydney were reorganised, there would be room for another three channels which could be used for pay TV just as easily as any other form of television — but it's not even part of the debate any more.

■ **Consumer protection:** So far the consumer has taken the back seat in the pay TV debate — but no viewer, no subscriptions, no pay TV! Numerous issues need airing. For instance, if we accept that pay TV is likely to evolve from satellite to cable, will subscribers have to obtain new equipment? Is it possible to design a common decoding system so that consumers don't have to choose between competing technologies? In the run-up to the Senate inquiry, a code of practice on consumer protection was proposed, covering billing and credit management, fault repair and privacy. The Coalition also proposed a simpler procedure for complaints — a 'one stop shop' independent complaints review panel.

■ **Advertising:** The questions here concern whether there should be advertising at all — in the long term, pay TV advertising could eat into the budgets of the commercial free-to-air networks. A more likely arrangement, however, is a limited percentage of air time or even an initial ban on advertising, perhaps increasing over the years to soften the impact on free television. As we explain in *How will it affect free TV?* on page 21, the main concern is to ensure that the vast majority who won't subscribe to pay TV still have access to quality television.

■ **The role of the ABC**: This is one of the most controversial issues facing the Senate inquiry, and by the time this article is published a position should have been reached. The ABC was clearly in the running for a licence but opinion has swung between its being banned altogether on the one hand, and on the other, being guaranteed a place.

The SBS also jumped on the bandwagon relatively late, claiming it would lose access to a number of specialty programs unless it ran a pay TV channel.

Most of the questions the public would like answered with regard to pay TV in Australia do not have hard and fast responses. Much will depend on the final outcome from Parliament — a compromise no doubt between the many interested groups lobbying the Senate committee. And many decisions of content, quality and efficiency of administration of the service will rest on the shoulders of the successful bidder.

Sky has won loyalty faster with men than women — mainly, it says, because it ran free-to-air rugby league as a pre-launch promotion and so shaped itself as a sports network. Its 'typical' viewer is male, aged between 30 and 50 with a high income. There is talk of redressing this imbalance by introducing a channel specifically targeted to women.

Its sports channel is dominated by material from the US 24-hour sports channel, ESPN, with additional coverage from Australia's Nine Network and some local sports. The news channel "is virtually a 24-hour CNN feed", according to Sydney-based newsletter *Communications Update*. It carries New Zealand weather and local news by repeating a local TV station's 6 pm news at 7.30 pm.

And how does the audience view its new service? We asked our sister publication in New Zealand, *Consumer*, to seek its readers' experiences, and saw more positive comments than negative ones. "We can get news important to other countries that we wouldn't hear about," said one Sky subscriber, and "it's very convenient for us to just drop off payment at a Sky office near our home". A major advantage seems to be less ads: "It is great to watch a film with no advertisements, a lot of the sport is ad-free as well." Complaints, on the other hand, included "we don't want American football" or "too many repeats".

It costs New Zealand pay TV viewers NZ$10 a week to subscribe, and there's a refundable bond of NZ$100 for the decoder and $150 for a dish to receive the signal. A decoder that will allow video recording of programs reportedly costs another $70 or so.

There are no signs that free television has suffered from the advent of pay TV — although subscriber figures are still quite low so it's early days yet.

Unite for strength

The disastrous start to the United Kingdom's pay service is almost legendary. The rival companies — BSB and Rupert Murdoch's Sky — finally merged to form BSkyB. Currently, 15% of UK households pick from Sky One (an entertainment channel), Sky Movies, and News and Sports. The first two show a lot of American material — there's no regulatory incentive to contribute to the local production industry by showing UK programs. The sports channel, on the other hand, is attracting growing criticism for its agressive activities. It's recently won the rights to a number of sports events such as rugby league, cricket and soccer. Subscription is £15 per month.

Canada

Cable is the dominant form of pay TV in Canada. Prior to the introduction of its own national scheme, many Canadians were familiar with cable as a means of receiving American TV signals. The Canadian system was launched in 1982 and by 1985 62% of households were subscribing. Subscriptions are offered in packages, with 'tiered' services added to the basic cost.

Six licences were granted originally, but four years later only one of the original licensees, First Choice, was still in business. It offers a pay-movie service in addition to specialty music and sports channels.

According to Peter Westerway, former chairman of the Australian Broadcasting Tribunal, "having invited too many franchisees to compete, they effectively hamstrung them by demanding that they simultaneously devote a high percentage of transmission time to Canadian productions ... Within two years of their inception every Canadian pay TV service was at death's door".

As another commentator put it, "the networks [met] the regulations largely through frequent airings of existing Canadian films, many of which were commercial and critical flops when first released". Whoops!

While it's easy to see the Canadian experience as a horror story of over-regulation, over-optimism on the part of suppliers may have been equally to blame. New, less rigorous and more flexible, content regulation was introduced in the mid 1980s and the industry is much more stable.

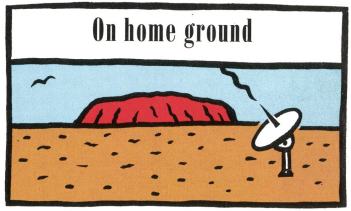
Wowwow in Japan

Pay TV is available in both cable and satellite form in Japan. While many viewers subscribe to a cable service to obtain better reception, multi-channel type services have not yet gained a large following.

Around 500 000 households pay around $22 a month for a package of seven to 15 channels covering news, sports, comedy, movies and music. They also pay an initial hook-up-fee of $1500 to $2000.

On the other hand, around five million households receive direct broadcasting satellite, paying $400 for a satellite dish, $300 for a tuner and a monthly fee of about $6.50.

A new channel, WOWWOW, was launched in April last year, providing 24-hour broadcasting with a 50% to 60% core of programming consisting of films from around the world.



PAY TV as such is nothing new in Australia. Sky Channel's been broadcasting rock music and sport, especially racing, to pubs, clubs and hotels for six years. The American news service, CNN, is now available in a number of hotels, and there's a scattering of business-type television services round the country.

The pay TV ball that's been passed from minister to minister to minister to Prime Minister in recent years, however, has been in the domestic pitch. Headlines such as "the price of pay TV will be a cultural catastrophe" and "reach for the pause button while our pollies ponder pay TV" are referring to pay TV *in the home*.

And at the time of going to press, the Senate had announced plans to start — yet another — six-week inquiry.

Why the delay?

Ask various players in the industry why it's taken Australia such a long time to get even this far, and they'll nominate two main reasons. The first is steady opposition from existing interests in the television industry. And the second is that the issue of pay TV is very complex.

Now, however, domestic pay TV looks like moving out of the realms of debate into the world of possibility. At the time of writing (late August), the moratorium on its introduction was still due to lift on 1 October; and new legislation — the

Broadcasting Services Bill — includes a framework for pay TV operation.

The form this regulatory framework should take is the subject of the Senate inquiry. When it's finally agreed, the bill will lay down the law for issues like ownership, program content and advertising. It will also need to define 'broadcasting', as opposed to 'narrowcasting'.

Narrowcasting is generally accepted as targeting special audiences, or being in a limited arena such as a business premise. Broadcasting on the other hand, is defined for these purposes as having wide appeal and being made available to the general public.

But if a current subscription service such as Sky Channel tried to extend its operations by going into homes, would this mean it was now 'broadcasting' instead of 'narrowcasting'? If it was, would it then come under the section of the bill proposed for domestic pay TV? The distinction between 'broadcasting' and 'narrowcasting' could well be argued out in the courts.

What's the picture looking like?

Though it's still out of focus, the pay TV picture is looking like four channels on the Optus satellite as soon as the first licence is awarded. That leaves two transponders on the satellite which could be up for grabs for a further two operators at the end of an 'exclusivity period' of, say two years (see *Contentious issues* on page 18).

Quite where cable fits in is not clear — it could be available to fill in for satellite in areas of bad reception, or it might be up for the taking in the second round of licence awards.

The first operator will probably run channels something along the lines of sport, news, movies and entertainment. When the government called for expressions of interest earlier this year, there was no shortage (118 registrations) of companies wanting a bite of the Australian pay TV pie. Many of the interested parties are consortia of companies, set up especially to bid for a licence.

How will it affect free TV?

Even if, from a business point of view, pay TV is a huge success and pulls say, 20% of the population a few years after its launch, that still leaves 80% of the population watching only free TV. That's why the impact of pay TV on the free channels is so important. One consultant says it's "in the hands of the free TV operators", but we don't think it should be.

The main concern of the free channels would be falling audience, which for the commercial networks, could mean losing advertising dollars. The impact on SBS and ABC is less clear — some say the Opposition's enthusiasm for guaranteeing the ABC a place in pay TV is its way of giving it a chance to survive despite cutbacks in funding that a Liberal government might introduce.

If advertising were allowed on pay TV, it would be a case of cutting the pie into more, smaller portions, which could again reduce the networks' advertising revenue. On the other hand, minimal advertising on pay TV could be a drawcard for attracting more subscribers to the new service.

It's a catch 22. In one draft of the bill, it looked as though pay TV advertising would be restricted so that the major source of revenue remained subscriptions and no advertising would be allowed on a satellite service.

These financial fears have no doubt fuelled the current channels' enthusiasm for joining the pay TV race.

Although we understand their desire for survival, there are much wider social implications too. For many people, the television is an important source of information — be it what's going on in the world, or advice about health or education. So we wouldn't like to see the availability or quality of free TV suffer.

It's difficult to be precise about pay TV's impact on free-to-air TV, but it will undoubtedly have a gradual long-term effect on content and advertising revenue. One possible outcome is more local coverage balancing pay TV's more international material.

A more tangible threat, however, is what's termed siphoning — mainly in the sports arena. It refers to a situation where the television rights to a sports event usually covered by free TV, are bought by a pay TV operator, so the event is accessible only to pay TV subscribers.

In Australia there will be a list of protected sports events which must be shown on free TV — the Melbourne Cup, for instance. But as different sports gain popularity, they are likely to escape this list and be shown only on the pay services. And to be a valuable, relevant list, it will require constant monitoring of broadcast rights. A simpler approach, which would also protect free TV audiences, would be to prevent pay TV from buying exclusive live broadcast rights.

What will it cost?

How much the service will cost, and how this cost will be paid, will be in the hands of the pay TV operator. The figure most suggested is $10 a week.

What you'll pay for other equipment is more difficult to predict. But a ballpark figure is $1000 for the dish and decoder together, or if the operator chooses to rent out equipment, $60 a month for the lot — dish, decoder and programs.

As for method of payment, 'direct debit' is the word on everyone's lips. That means automatically deducting a figure each month from your bank account.

When we asked how people could be charged for a cable service, Telecom answered, "How long is a piece of string?" A possibility is to adopt a similar approach to satellite services and charge an upfront fee, followed by a monthly figure.

What will we see?

What could the mature Australian pay TV system look like? One consultant gives an interesting depiction: "A cable service in Sydney would carry the five broadcast networks, a public community-type channel, a couple of experimental channels which would be more like a communications system than a TV channel, and maybe 15 pay TV channels, some of which wouldn't be 24-hour; it would possibly carry Sky Channel too."

If pay TV does come up with the answers and provide more choice on the screen, all well and good. But the Consumers' Association's main concern is for the protection of free-TV, maintaining its quality and availability.

We would also like to see more attention paid to potential pay TV viewers. The introduction of pay TV services overseas has not been without hitches — and in many cases it's been the consumer who's got the raw end of the deal. A written consumer protection charter covering complaints handling, billing and so on, would anticipate some of the problems and set some service standards from the outset.

Finally, we'd hate to see a repeat of the US experience with regard to contacting the TV operator. Some sort of community consultation could provide a channel of communication for the viewer as well as valuable feedback for the TV operator. In theory such a forum should work well for those on both sides of the screen.

If we can get the right mixture of regulation, consumer protection and programming, offering a complement to free television, who knows — the sky's the limit. ❑

HOTHOUSE EARTH

Most people associate the greenhouse effect with rising temperatures (maybe not such a bad thing, you might say, coming out of a cold winter). But there is a school of thought that says there's no hard evidence for a 'global warming' problem — it's just a 'greenie scare tactic'. We thought it was time to examine the state of play.

THE GREENHOUSE EFFECT has been around for billions of years. Put simply, certain gases in the atmosphere act like a blanket around the earth — an analogy you've probably heard before. It's a special kind of blanket, however, because the energy comes initially from *outside* the blanket — from the sun. These 'greenhouse' gases have properties that cut out around half the radiation coming from the sun, and help retain what does get through in the form of heat, thus keeping the temperatures on the surface fairly constant. *Everything under the sun*, right, has more information on the mechanics of the effect.

The concerns about the greenhouse effect are that through various means we are changing the mix of gases in the atmosphere, that this will lead to a higher average temperature on the earth's surface and that subsequent climatic changes could have disastrous consequences for life on this planet. Technically, we should be referring to the problem as the enhanced greenhouse effect.

The opposing view says that any increase in average global temperature is due simply to natural variations, that the earth can absorb the effects of human activity, and that there is no real need to curtail our activities.

What are the greenhouse gases?

Not all the gases in the atmosphere contribute to the greenhouse effect. Nitrogen and oxygen (which together make up 99% of the atmosphere) have virtually no effect. In fact, the major greenhouse gas is water vapour. It accounts for around two-thirds of our atmospheric 'blanket'.

However, the concentration of water vapour isn't something we can directly control. Water circulates through the atmosphere very rapidly — evaporating from oceans and rivers, forming clouds, hitting the earth again as rain, and so on — and human-induced water vapour is likely to be quickly dissipated by these natural processes. The role of water in the greenhouse effect is actually quite complicated, as an increase in average temperature might increase cloud cover, which in turn could produce a cooling effect. This is just one of the complex

EVERYTHING UNDER THE SUN

THE SUN radiates a whole spectrum of energy, including high-frequency short-wavelength ultraviolet, through the visible light spectrum, to lower-frequency longer-wavelength infrared radiation.

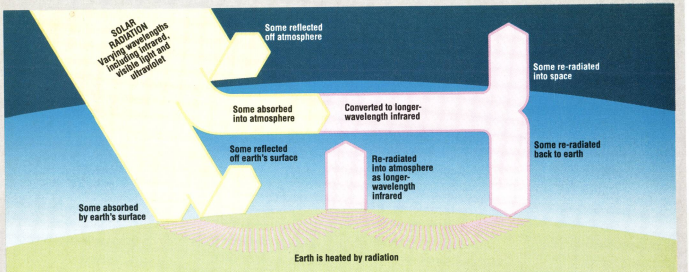
The earth's atmosphere lets through most of the visible light, but certain gases absorb or reflect the ultraviolet and infrared radiation. The absorbed radiation warms the atmosphere and is then re-emitted as infrared in all directions. Some is lost to space; the rest makes its way down to the earth's surface.

When the sun's radiation finally reaches the earth, some is reflected and the rest is absorbed. This heats the surface, and the warm earth then radiates infrared energy back up into the atmosphere. As before, this energy is absorbed by certain gases and re-emitted in all directions — some going out to space and some returning to the earth.

It is this recycling of radiant energy that allows the earth and atmosphere to retain more heat than it otherwise would.

The principle is similar to a greenhouse. Glass is also transparent to visible light but less transparent to infrared. That is why greenhouses heat up and why the warming effect of these atmospheric gases has come to be called the greenhouse effect. Without it life on earth would not be possible.

The moon, which receives a similar amount of radiation from the sun as the earth does but has virtually no atmosphere, has an average daily temperature range of around –170°C to 130°C. By contrast, the average range on the earth is just –50°C to 35°C.


SOLAR RADIATION
Various wavelengths including infrared, visible light and ultraviolet
Some reflected off atmosphere
Some re-radiated into space
Some absorbed into atmosphere
Converted to longer-wavelength infrared
Some reflected off earth's surface
Re-radiated into atmosphere as longer-wavelength infrared
Some re-radiated back to earth
Some absorbed by earth's surface
Earth is heated by radiation

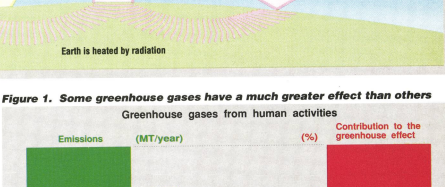
balance of factors that contribute to the earth's climate.

Other naturally occurring greenhouse gases are carbon dioxide, methane and nitrous oxide. Our very own additions are chlorofluorocarbons (CFCs) and other halocarbons, which are the product of industrial processes and were non-existent a couple of centuries ago.

Some gases contribute more to the greenhouse effect than others. A single chlorofluorocarbon molecule, for instance, has an effect thousands of times greater than a single carbon dioxide molecule. But there are thousands more CO_2 molecules being pumped into the atmosphere than CFCs. Figure 1 shows the annual global human-made emissions of various gases (in megatonnes — MT — or millions of tonnes) along with their relative greenhouse contributions.

Some gases are actually believed to have a 'global cooling' effect — sulphur compounds, for example, and various airborne particles, reflect solar radiation but little radiation from the earth. They are produced naturally by volcanoes but also by industry, by burning certain types of coal in the northern hemisphere and by burning forests. However, since some sulphur compounds are also responsible for acid rain, they can hardly be considered environmental good guys.

Figure 1. Some greenhouse gases have a much greater effect than others



What's the evidence?

The average concentration of CO_2 in the atmosphere is currently around 350 ppm (parts per million). Analysis of air bubbles trapped in glacial ice tells us the average concentration 200 years ago was around 280 ppm. Since the industrial revolution, its concentration has increased by 25%. In the same time the concentration of methane has doubled, and nitrous oxide has increased by 8%.

These increases seem to be the only evidence everyone agrees upon. Other figures are subject to claims and counter-claims. For instance:

From ice in the Antarctic, we can

trace the composition of the atmosphere back hundreds of thousands of years. It shows a strong correlation between the levels of carbon dioxide and methane in the atmosphere and the average global temperature. The various ice ages in our past were accompanied by low levels of these gases.

Opponents of global warming theories query the link, suggesting the concentration of greenhouse gases was a response to changing temperatures rather than the other way round.

"We know unequivocally that greenhouse gases are increasing. We know that these increases will affect the earth's climate. What we don't know for certain is by how much and how quickly."

So is it actually getting any warmer in the present? Long-term analysis of temperature records shows the average surface temperature has increased by about half a degree Celsius in the last 100 years or so. This is not insignificant. The ice ages were on average only 5°C–7°C colder than the present and the current 'best guess' for a global temperature increase if CO_2 levels double is around 2.5°C.

A minority of scientists does not accept this as valid. Temperature records only go back to around 1880 and most of the 0.5°C increase was between 1880 and 1940. From 1940 to 1965, temperatures decreased around 0.2°C and since then have increased by 0.3°C — a net increase of only 0.1°C. Since the bulk of extra greenhouse gas emissions have been in the last 50 years, greenhouse opponents feel it is misleading to talk of a 0.5°C increase since 1880 and to attribute this to an increase in greenhouse gases.

One response to this is that global temperature patterns are cyclical and the temperature drop in the 1960s would have been even more noticeable but for the warming effect of the increased greenhouse gases. Proponents of an enhanced greenhouse effect say we are coming out of that trough and temperature increases should be more noticeable in the next few years.

Greenhouse opponents also suggest that because the majority of temperature records have been taken in cities and they generate their own heat, this is distorting the global average. Greenhouse proponents say this has been allowed for and point to rising ocean temperatures as further backup.

"One myth we must dispel is that the uncertainties surrounding the science of climate change are such that the issue should not yet be taken seriously," said Dr Brian Tucker, head of the CSIRO Division of Atmospheric Research. "We know unequivocally that greenhouse gases are increasing. We know that these increases will affect the earth's climate. What we don't know for certain is by how much and how quickly."

What does the future hold?

This is the tricky part. Assuming the global temperature continues to increase, one prediction for Australia is that rainfall will become more tropical (ie increase in the summer and decrease in the winter) and tropical cyclones may move further south; sea levels are predicted to rise, and some plants may benefit from increased temperatures and CO_2 levels but others may suffer.

Quantifying the magnitude of these changes is attempted using computer models. Initially they require assumptions on future greenhouse gas concentrations (based on how the population will increase, what sort of energy-use patterns people will have, and what effect emissions will have on current green-

GREENHOUSE GASES —

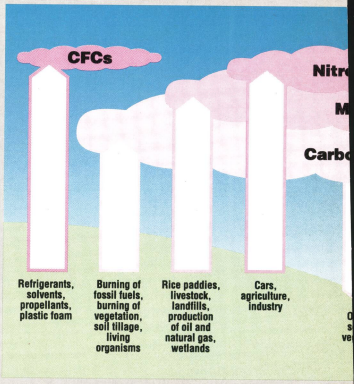
APART FROM chlorofluorocarbons (CFCs), most of the greenhouse gases are produced by natural sources — the ocean, the 'biomass' (animal and plant life) and volcanoes. The counterbalance to this natural production is absorption by the oceans, the soil and vegetation. Methane and nitrous oxide are also released naturally from the oceans as well as from other sources (wetlands, termites etc) and degrade naturally.

From a human-production point of view the burning of fossil fuels is the major source of **carbon dioxide**, followed by clearing and burning vegetation, and soil tillage. As well, deforestation and other land use changes are reducing the amount that's absorbed by vegetation, and this effect has been equated with adding another 1600 million tonnes of carbon to the atmosphere per year.

Methane emissions come from many sources including rice paddies, livestock, landfills and industry — particularly as a result of losses from natural gas production and distribution (natural gas is actually methane), as well as from oil production and coal mining.

Details of emissions of **nitrous oxide** are not as well documented as carbon dioxide but are believed to include industry, cars and agriculture.

Chlorofluorocarbon emissions are the result of the use of these chemicals as refrigerants, solvents, propellants and in the manufacture of plastic foams. Strict controls on their use have led to current emissions being 40% lower than in 1986. The August 1992 issue of CHOICE has an article on the ozone layer which gives more information about CFCs.


CFCs
Nitr
M
Carb
Refrigerants, solvents, propellants, plastic foam
Burning of fossil fuels, burning of vegetation, soil tillage, living organisms
Rice paddies, livestock, landfills, production of oil and natural gas, wetlands
Cars, agriculture, industry

house gas concentrations). They then require estimates of how this will affect global temperatures, and how this in turn will affect the weather, sea levels, etc. These computer simulations (like any models) use incomplete data and unproven assumptions and so no figures should be accepted as entirely accurate.

That said, the following figures are currently accepted as best estimates of the climate change which may result from carbon dioxide levels reaching 560 ppm (double the level before the industrial revolution):

- Surface temperatures to rise 1.5°C to 4.5°C
- Precipitation (rain, snow, dew etc) to increase 3% to 15%
- Average sea level to rise by around 10 cm to 35 cm

Relatively rapid climate change on this kind of scale would have ramifications beyond simply giving us warmer days or wetter summers — it would mean fundamental changes to the way we grow our food, for example; the diseases, droughts, floods and bushfires we face; the storms and rains our buildings and drainage systems have to cope with. It would have a major impact on economies, on the health of populations, on the way we live.

The Intergovernmental Panel on Climate Change (IPCC), which is an international body set up to assess climate change issues, has drawn up a number of scenarios for future CO_2 levels. The first assumes we don't do anything, continuing with the same patterns of energy use and deforestation we have at present. This predicts the CO_2 level will double by the year 2030 and double again before the end of the next century.

The second scenario assumes we switch to natural gas rather than coal as our major energy source, greatly increase energy efficiency and reverse deforestation. As a result, emissions would continue to increase but at a much slower rate, the CO_2 level doubling by the year 2060 and continuing to rise.

The only scenarios that stop CO_2 levels increasing indefinitely require switching to non-fossil fuels (solar, geothermal, nuclear etc) and major changes in agricultural practices.

What needs to be done?

Making the change from a fossil fuel-based society to a renewable resource base would not be quick or easy, although the limitations may be economic or political rather than technological.

Many strategies for achieving such a shift make economic as well as environmental sense, however. And there are a number of things we can do as individuals to reduce our personal energy (fossil fuel) consumption, as consumers to influence industry consumption, and as voters to influence governments. *On the home front*, overleaf, suggests some simple things we can do as consumers.

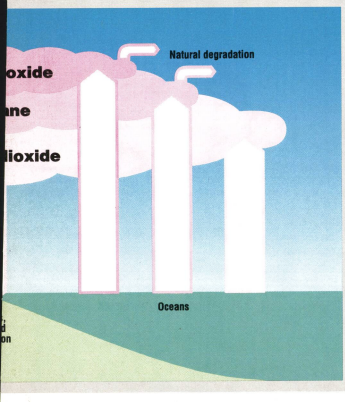
There are a number of things we can do as individuals to reduce our personal energy (fossil fuel) consumption, as consumers to influence industry consumption, and as voters to influence governments.

What's being done?

The Commonwealth Government has said it is seeking to stabilise emissions at 1988 levels by the year 2000 and to reduce them 20% by 2005. However, this is not a commitment. Environment minister, Ros Kelly, has also said, "These are not measures which we will take unilaterally if they are likely to have net adverse economic and trade impacts domestically."

The National Greenhouse Steering Committee has released a draft national

WHERE DO THEY COME FROM?



Overall, it is estimated the atmosphere contains around 2800 gigatonnes of carbon dioxide (one gigatonne, or GT, equals a billion — a thousand million — tonnes). Natural CO_2 production is around 700 GT a year while human production is around 26 GT a year. Natural absorption is a bit over 700 GT per annum, indicating that the earth is compensating somewhat for our production, but there is still a net increase of around 11 GT a year. That is a bit over two tonnes every year for every person on the planet.

That's not the full story, however. Australia produces more than 14 tonnes of CO_2 per person per year. The only countries with a worse per capita record are Canada (around 17) and the US (around 15).

Countries such as China and India which rank highly in total CO_2 production are still only producing around one tonne per person per year. But this will grow and it's important to realise that in the developing world, rising population levels and rising per capita emissions will rapidly increase the concentration of greenhouse gases in the atmosphere.

The onus is on the developed countries to reduce their greenhouse gas emissions immediately. And if we want poorer countries to live by the same rules then we have to assist them. As Bangladesh's Fazlul Haq said, "It's up to the rich nations to decide whether they want to die from environmental destruction. We are poor and we are dying anyway."

It is for the developed world to give leadership, funding, and access to technology as a pathway for the developing countries to contribute to the solution.

greenhouse strategy which is due to be presented to the heads of the various Australian governments later this year. It contains a number of 'key elements' and "a phased plan of action towards limiting greenhouse gas emissions and preparing for the potential impacts of climate change, beginning with a range of immediate measures". It fails, however, to mention any specific measures or targets.

Earlier proposals were much firmer, but these seem to have been diluted significantly. As we went to press, a meeting had been held in Canberra to discuss the strategy but it was poorly attended and the draft was heavily criticised by both business and environment groups.

On an international level, the major treaty signed at the Earth Summit in Rio de Janiero earlier this year was the Convention on Climate Change. It seeks to stabilise greenhouse gas concentrations at a level that won't result in significant climatic change, but it, too, contained no specific targets. This lack of specifics raised the ire of many groups.

"The draft convention initially contained the EC commitment to a legally binding stabilisation of CO_2 emissions at 1990 levels by 2000," said Greenpeace, but President Bush "threatened that he would not attend the Earth Summit unless other industrialised countries accepted a Climate Convention with no commitments". The result, says the organisation, was "a complete backdown. A climate convention devoid of any strategy to halt global warming".

The disappointment is not universal. One United Nations official reportedly said, "If you look at the Earth Summit product, you have a right to be disappointed. If you look at the process, you can be elated. For the first time in history, 170 governments assembled together to talk about the earth."

Conclusion

Despite all the research, hard facts are few and far between, and unequivocal detection of an enhanced greenhouse effect from observations is not likely for a decade or more.

This has led to a kind of backlash in recent times, with articles appearing like the one in the Newsweek section of *The Bulletin* earlier this year which began, "The end is not at hand. The environmental rhetoric is overblown. The planet will survive."

Such an attitude could be a product of resistance to change, mainly generated by vested interests. But it has prompted scientists such as the CSIRO's Dr Brian Tucker to speak out. "One myth which is current in the media is that scientists have somehow backed away from their earlier predictions about just how pervasive an enhanced greenhouse effect could be. That is not true. We are just as concerned. The science is standing up extremely well to scrutiny and further experiments."

It is true that no computer climate model is going to predict this planet's climate accurately. But that doesn't negate the concerns. The composition of the atmosphere is changing as a result of human influence. And the very scale of the changes means that by the time we can point unequivocally to the effects (and causes), it may be too late to adjust to them.

The potential for global warming is something all consumers should be concerned about. It is after all a product of over-consumption. ❑

ON THE HOME FRONT

SAVING ENERGY is the most obvious place to start. Residential energy use accounts for around a sixth of total CO_2 emissions in Australia. It's estimated that individual energy-saving measures in the home could reduce CO_2 emissions by a third (CHOICE May 92 *Why waste energy?* has more information on this point).

Cars are responsible for nearly one fifth of our energy-related CO_2. If public transport is too unreliable or inconvenient for you, try car pooling or lobby for better transport services in your area. Public transport is often in a Catch-22 situation where people won't use it because it's too inconvenient for them and the authorities won't improve the services (and are even cutting them back) because people don't use them. Aside from that, driving more economically, maintaining your car properly, and thinking about fuel efficiency when buying a new car will help.

We also consume energy indirectly through the goods we buy. Consider products with minimal packaging, reusable packaging or recyclable packaging. Making an aluminium can from raw materials produces at least six times more greenhouse gas than one made from recycled aluminium. Recycled plastics and glass can save half the greenhouse gases resulting from the production of new plastics or glass.

One other thing: it doesn't hurt to plant trees yourself either.

THE KOALA — that sometimes cantankerous but decidedly cute national symbol — is in danger. Its numbers have declined dramatically since white settlement and they continue to dwindle. Koalas have already disappeared from Tasmania and South Australia and, despite some concerted efforts, it's proving much more difficult to save them from extinction than you might think.

Although the koala itself was made a protected species in 1927, it has remained open season on its habitat — around 80% has been destroyed since white settlement, and what's left is unprotected by legislation. As well, it's still not completely clear what makes forest suitable for these sensitive animals.

According to Dr Steven Cork, a researcher with the CSIRO's Division of Wildlife and Ecology, soil quality is an important factor. The leaves of eucalypt trees, which are the koala's sole source of food, vary in nutritional quality depending on the fertility of the soil the trees are in, and only those growing in rich soils will do.

In poor soil, the leaves are lower in nutrients and higher in fibre, which fills koalas up without providing enough nutrients and makes it difficult for them to eat more to make up the shortfall. Eucalypt leaves also contain poisonous compounds as part of the tree's self-defence system, to protect it from animals feeding on its leaves. If a tree is struggling to grow in poor conditions it produces higher levels of these poisons making it an unsuitable food source for koalas.

This need for rich soils puts koalas in direct competition with humans, and it's pretty obvious which species is losing. The areas with the best-quality soils for them are also the areas we humans like to clear for farming or forestry.

Koalas also need a lot of food, so they need quite large and unbroken expanses of bushland. When these areas are reduced, the population of koalas they support eventually declines. Inade-

SAVE THE KOALA DAY

quate habitat and food supply lead to ill-health and increase susceptibility to disease. Chlamydia — a micro-organism which causes disease and infertility — is taking a large toll, although under normal circumstances, wild koalas would be healthy enough to withstand it.

Cars and dogs are other problems.

The Australian Koala Foundation (AKF) funds research to increase our understanding of the koala and its needs. It also identifies bushland which could support the animals, much of which is actually on private land — almost none in national parks. It's important that the owners of this land be encouraged not to clear it all, but to leave sufficient forest linked by corridors of natural vegetation so koalas can move from one area to another to find food.

The AKF provides a consultancy service to local councils, town-planners and landowners. A major project, jointly conducted with the Brisbane, Logan and Redland councils in southern Queensland, identified and mapped a 10 000-hectare area of koala habitat south of Brisbane. Earlier this year, this research convinced the Queensland government to reroute a new highway proposed to go through the region — a major victory for the AKF and koalas.

The AKF is a non-profit organisation which raises funds through public donations and sponsorship. It also organises Save the Koala day — to be held this year on October 2 — and sells a range of gift items for koala lovers by mail-order. If you want to help, contact the AKF by phoning (07) 229 7233, faxing (07) 229 3929 or writing to GPO Box 9899, Brisbane 4001. ❑

Friday, October 2 is national Save the Koala Day. Hand-made gumleaf badges will be for sale in chemists all over Australia to raise money for research and improving community understanding about what koalas need to survive.

MAKING GREEN FINGERS GREENER

HAVE any nurseries thought of asking customers to return plant pots? asks RC of Wurtulla, Queensland. "I've just put in a heap of trees and shrubs and ended up with near new plastic pots. I think this would be a very good way to save on plastic pots," she writes. Sounds very sensible, so ask at your local nursery.

GREEN SPOTLIGHT

OUR recent Green Page special, *Packaging spotlight* (June 1992), has prompted another flood of letters about over-packaging. Here are some of the best of the worst:

■ MM of Rivett, ACT was disappointed to note that **HOME BRAND Minced Garlic** — which used to be packaged simply in a glass jar — still comes in a jar but is now *also* encased in plastic.

■ JT of Mt Martha, Victoria, bought a pack of two **ARLEC Rechargeable Super Performance Nickel-Cadmium Batteries** and was amazed at the amount of packaging — "around six times the size needed to display the batteries," she writes. "It's interesting to note the triple arrow recycle symbol on the package. Yes, the product is greener than normal batteries, but," she asks, "what about making the packaging more environmentally friendly?"

■ But this month's Green Spotlight award goes to IW of Beverly Hills, NSW, who sent in the packaging for a roll of string from **HART'S Kites**. "It looked very insignificant in this huge container," he writes, and we believe him. The packaging — a cardboard backing sheet in a plastic sleeve — is almost half a metre long and 23 cm wide!

Living with ARTHRITIS

It seems like there's someone peddling a sure-fire remedy for arthritis on every street corner. Exactly what is this potentially disabling disease? And how can you tell the difference between the quack cures and proven treatments?

SUFFERING FROM ARTHRITIS can mean living with insidious, bewildering pain, stiffness, fatigue and depression. The disease can result in loss of mobility, including the ability to walk and use your hands and arms with ease. Arthritics can find themselves dependent on other people for help with simple tasks like getting dressed or brushing their hair.

One of the most common chronic medical conditions in Australia, it affects about two million people. While a higher proportion of older people have the disease, it is found throughout the community, in all age and social groups. Even infants and athletes can acquire it.

150 diseases in one

Arthritis is a general name used to describe more than 150 types of disease which affect the joints of the body. The most common are osteoarthritis, rheumatoid arthritis and gout. Stiffness in the joints is one of the most crucial symptoms but others include inflammation, skin rashes, loss of vision, damage to organs, ligaments and other connective tissues. *Your arthritis* overleaf, gives more information about these.

Each type has its own unique causes. Current research is favouring the theory that the onset of **rheumatoid arthritis** involves a faulty immune reaction. The immune process, the body's defence mechanism, somehow gets misprogrammed into attacking the body's own tissues in the joints. Why this occurs remains largely unanswered, but latest findings indicate some people may have a genetic predisposition towards it.

Osteoarthritis is often called the 'wear and tear disease', usually coming with age and with chronic irritation of the joints over a long period of time. Bad trauma — a bad joint fracture or repetitive abuse (like that experienced by a footballer) — may cause osteoarthritis.

Gout occurs as a result of an imbalance in the body's chemistry which leads to a build-up of uric acid. Crystals of uric acid form in the joints causing inflammation and excruciating pain.

Finding the most suitable treatment for arthritis is a minefield. It is notoriously unpredictable and individual in the way it strikes each sufferer, but there are some simple methods that can be used to control many of its unpleasant symptoms.

Rest or exercise?

The right balance between rest and exercise is important. Exercise can help strengthen muscles and bones, and maintain and increase joint movement. It also gives psychological benefits because it helps fight anxiety and depression.

Be regular and slowly progressive with your exercise program — swimming, dancing and walking are recommended. It is a good idea to take all your joints through the full range of motion each day, paying special attention to joints that are stiff as they need more exercise (but never force a stiff joint to move more than it is able) and concentrate on quality rather than quantity.

Muscles and joints are exercised more effectively when they're warmed up — perhaps after a bath or shower — and you should move your joints slowly and smoothly, not jerk them.

Be aware of pain or swelling and exercise gently if either is present. If pain after exercise lasts more than two hours, it means you've overdone it and should think about changing your program. Pain is unpleasant but it is an important defence mechanism for the body. It can tell you that you are overusing an injured joint or interfering with the natural healing process. Don't blunt the pain sensation with pain medications more than necessary.

Rest is important as it reduces inflammation. You don't always have to lie down to rest. Resting can mean changing your posture, wearing a splint to support an inflamed joint, or doing a different activity. Too much rest, on the other hand, will weaken muscles and tendons, and increase stiffness.

Relaxation is also important. It will enhance your rest periods and decrease stress levels. Use methods like slow deep breathing or meditation.

Common therapies

The application of heat to joints improves circulation, promotes relaxation and relieves pain. Hot water bottles, electric heating pads, paraffin wax baths, hot tub baths and hot towels may all be used. Cold packs can be effective in treating an acute flare-up of a joint and in reducing pain and muscle spasm.

Physiotherapy is used to relieve pain and stiffness, improve the working of joints, strengthen the muscles controlling those joints and minimise development of joint deformities.

If you have access to a hydrotherapy pool, exercising in warm water can achieve excellent results. Hydrotherapy is often the only exercise method tolerable for patients with severe joint disease. The buoyancy of the water supports the joints so they can move easily and freely and the heat helps tight muscles to relax. It is useful for improving circulation and building strength.

What about diet?

Arthritis sufferers have tended to have a preoccupation with diet.

A small number of people have immunological reactions to certain foods and find the symptoms of arthritis are relieved by not eating them. However, suggestions that the disease can be *cured* by eliminating classes of foods such as those in the nightshade family (eggplant, tomatoes, potatoes, capsicums), have no scientific basis.

The only dietary factor known to be associated with osteoarthritis is a high-kilojoule diet leading to obesity. This increases the load on weight-bearing joints such as hips and knees, which are two of the most susceptible areas.

Much literature exists on the relationship between eating particular substances and rheumatoid arthritis. It has been claimed, for example, that taking fish oil, evening primrose oil, vitamins and minerals or extracts from New Zealand green-lipped mussel can cure the disease.

Some of these substances can have mild anti-inflammatory effects, but some can also produce problems of their own. See *Alternative treatments or quack cures?* for more details.

Nor does it seem that rheumatoid arthritis is affected by foods. A recent study in Cambridge, England, involving 80 rheumatoid sufferers supports this view. Forty people in an experimental group were taken off all normal foods and given only a special powder for four weeks. Foods were then reintroduced one at a time. None of the group showed a significant reaction to any particular food. No differences between the experimental group and a control group (40 people who were not given the experimental diet) were found.

Gout is the only type of arthritis that can be treated with dietary intervention. People who are prone to attacks of gout should consume alcohol moderately, if at all. They should avoid purine-rich foods including anchovies, liver, kidney and other offal, and a weight-reduction diet low in sugar and saturated fats is recommended. Drinking more water will also enhance the kidney's ability to clear the body of uric acid.

Surgery

Surgery is becoming less of a last resort. In fact, its use in the early stages of the disease can prevent, or at least modify, deformities and serious mechanical abnormalities. It can be used to repair sinews, relieve pressure on nerves or clean persistently inflamed tissues from joints.

Joint replacement is now a widely used surgical method. The joint is removed and long-wearing plastics and vitallium take the place of cartilage and bone, with the artificial joint embedded in the ends of the bones on either side. The operation has liberated many sufferers, but some people may find it difficult to rehabilitate and learn to live with a replacement joint.

Learning to cope

Arthritis can be a painful, disabling and isolating disease. It cannot be cured, but control and alleviation of pain are achievable provided you are prepared to accept the disease, help yourself and accept help from others. The Arthritis Foundation of Australia, as well as funding continual research into the various types of the disease, has self-management programs designed to enhance and prolong the good health and independence of people with arthritis. Contact your state or territory branch of the Foundation for more information.

ANYONE FOR GOLF?

A LOT OF PEOPLE with severe osteo and rheumatoid arthritis would probably give up playing sports because of the pain and frustration — but not Pat Ping Kee. She may not play with a handicap of 11 these days, but she still finds 18 holes of golf a great form of therapy.

"While ever I can get out there and I'm above the ground, not under it, I'm doing alright," she says.

When playing golf, Pat wears splints to support her hands. She has special grips on her clubs so that even if she can't get a complete grip of the club it can still sit in her hand well enough to enable her to play. She also has a battery-operated buggy to make playing easier.

There are thousands of gadgets available to make it easier to live with arthritis.

For example, there are aids to help you rise more easily out of a chair or sit up in bed. Pressure-distributing covers for matresses and seats ease the pain of pressure on particularly sore joints. If you have trouble gripping things, you can purchase cutlery with chunky handles, contoured to compensate for poor muscle control.

Tasks like getting dressed or bending to put shoes on can be made a little easier. There is an aid designed to stretch socks or stockings and slip them on to the foot, a button hook and long-handled shoe horn.

There are things to help with cooking and food preparation including kettle or teapot tippers, bottle and jar openers, and devices to make it easier to turn taps, lids and doorknobs. Reading stands, needle threaders, perching stools and long-handled weeders for gardening may enable arthritics to continue to take part in recreational activities they enjoy.

Independent Living Centres in capital cities can provide more information.

YOUR ARTHRITIS

THERE ARE over 150 known types so it's impossible to examine them all here. If you have a rare type not profiled in this article, the Arthritis Foundation of Australia can provide information about the disease and sources of help available to you.

Osteoarthritis (OA)

This is the most common form of arthritis. It occurs when the cartilage in a joint loses its resilience and smoothness, stops being a shock absorber and starts to wear away. The bones then touch each other in places and form bony spurs to increase the weight-bearing area of the joint. This results in the joint having decreased mobility, being painful and stiff, and crunching when it's moved.

Osteoarthritis is approximately twice as common in obese people as in people with normal body weight. Women seem slightly more prone to it than men and it appears mostly in people over 45.

Symptoms include pain, stiffness, muscle weakness and cramps or muscle spasm around the affected joint. Although as a rule it is not as painful or as potentially serious as rheumatoid arthritis, extremely severe cases do occur. The mildest form causes knobbly enlargement of the finger joints but it usually strikes the weight-bearing joints, namely knees and hips.

Drugs are of secondary importance, with treatment being based on a program of activity including periods of rest and set daily exercise. They will probably be recommended at some time, however — initially simple analgesics, with NSAIDs (see page 32) used for more painful cases even though the process is not primarily inflammatory.

Rheumatoid arthritis (RA)

This is a complicated, progressive disease and is the most destructive type of arthritis. It is characterised by inflammation and joint destruction and/or deformity which may eventually damage blood vessels and organs including lungs, heart and eyes.

The inflammation makes joints red, warm, tender and swollen — probably affecting wrists, knuckles and knees or joints of the ball of the foot. Nodules, usually between the size of a pea and a mothball, can form beneath the skin, each representing the inflammation of a small blood vessel. Sufferers tend to have general problems such as muscle aches and stiffness, fatigue and even a low fever. Morning stiffness is often considered a hallmark of RA.

It usually strikes during the most productive years of adulthood, mostly between the ages of 25 and 50. But no age is spared — from the very young to the very old. Drug treatment, including the use of NSAIDs and SAARDs (page 32) must often be used to control the disease.

Gout or crystal arthritis

Gout is the best-managed type of arthritis. Uric acid is formed in the body by the breakdown of chemicals called purines. As we get older, there is a normal tendency towards higher levels of uric acid in the blood, and some people have a defect in body chemistry making them produce more than others. The build-up of uric acid can result in it crystallising in joints which causes inflammation. This inflammation represents the efforts of the body to remove the crystals but the process is very painful.

Gout may strike a toe, knee, ankle, shoulder, wrist or elbow — as a rule, just one joint at a time. People with gout are advised not to eat foods high in purine: anchovies, brains, broths, fish roe, gravies, heart, herring, kidney, liver, mussels, sardines and sweetbreads.

Many drugs are available to treat the disease. If not treated, however, the attack will peak in two or three days and usually lasts a week. Between attacks the joint and surrounding tissue are normal. People with a strong tendency towards gout may have five or six attacks a year.

Ankylosing spondylitis (AS)

Also called poker spine, this condition makes people unable to bend because the vertebrae tend to fuse together. A genetic risk factor plays a part in causing the disease, which affects men more than women, and can strike from an early age.

It often begins slowly in the lower back and moves higher. Although the pain can be excruciating, with good early care and emphasis on posture and mo-

I'D LOVE TO RIDE A HORSE

ELLA McLAUCHLAN was a perfectly happy, robust, tom-boyish ten-year-old until juvenile rheumatoid arthritis suddenly and mysteriously appeared.

"Ella had a rash a few months before she got sick but it never recurred" says her mother, Jenny. A few months later, she fell off her bed and her leg swelled enormously. She started going off her food, was constipated and just feeling a bit crook. Then she developed incredibly high fevers and all her joints became swollen — fingers, wrists, knees, toes, ankles. Her elbows, shoulders and hips came later.

Last year Ella spent nine months in hospital. Because of the severity of her condition, which kept her immobile, and the fact she had to take cortisone, she also developed osteoporosis.

The use of powerful drugs, combined with intensive hydrotherapy, treatments recommended by a naturopath and a course of traditional Chinese herbal medicine, have led to an improvement in Ella's condition. She has learnt to walk again (but uses a wheelchair at school to prevent being bumped).

Jenny says Ella's progress is "due to her own hard work. We were told she wouldn't go to a normal school but she was determined she would and she did. But the pain can be so crippling emotionally and her lifestyle is restricted".

Ella puts on a brave face: "I feel like I'm getting a lot better. I can do more," she says. But she admits there are many things she will not be able to experience.

"I would love to get a horse. I've wanted to do that all my life and I was going to just before I got arthritis," she says.

tion exercises, the sufferer can keep mobile even if fusion occurs. The majority of people with AS have little pain and can maintain normal lives.

Systemic lupus erythematosus (SLE)

Systemic lupus erythematosus can affect any organ of the body as well as joints, skin and mucous membranes. Like rheumatoid arthritis, it causes inflammation, but it is less severe, affecting the wrists, knuckles and knees, sometimes the hips. Any other joint in the body may be involved, but the spine is usually spared.

The joint will be tender when squeezed and sore when moved but may not look abnormal at all. The skin may be affected with rashes or sores, however; small ulcers may develop inside the mouth; and internal organs and the central nervous system can be involved. Injury to the bones as a result of systemic lupus erythematosus is rare and patients usually do well over a long period of time without crippling. A few patients do develop deformed joints, particularly in the hands.

Young women from their late teens to early 40s are the most frequent victims but it can occur in males and at any age. Treatment sometimes involves drugs such as corticosteroids, anti-inflammatory agents, aspirin or anti-malarials. Exposure to the sun can cause flare ups.

Juvenile arthritis (JA)

Juvenile arthritis can erupt as a disease of the whole body with high fever, rashes and aching muscles. Actual arthritic pain may not be present from its outset. The attack ebbs, returns in days, weeks, months or years, the arthritic pains becoming stronger with each recurrence. Other children can have arthritis in only one or a few joints (usually a knee is involved). As a rule the child feels generally well but in this form the eyes must be continually checked as vision problems can occur.

In a majority of cases the active disease burns out by adulthood, but there are cases where it persists into and through the person's adult life. And even though many lose the active disease, they are left with damage ranging from light handicaps to crippling deformities.

Drug treatment for children centres on aspirin. Steroids should be avoided as they cause bone growth to stop and can lead to failure to reach adult height. Physical therapy and exercise, particularly swimming, are helpful in maintaining muscle tone and mobility, while body contact sports and activities requiring a lot of jumping should be avoided.

WHAT DRUG IS THAT?

THE USE of drugs may be necessary to control the symptoms of arthritis. But take care; some of them are powerful.

Be meticulous in following prescription instructions. Many of the drugs prescribed have serious side effects so you must stop taking them when told to do so. Don't be tempted to increase the dose of medication no matter how painful your symptoms. Even the over-use of non-prescription or over-the-counter drugs can cause side effects including stomach upsets.

You must know the names and strength of your tablets. This information will be necessary if you need to see another doctor when on holiday or if you are suddenly admitted to hospital. Even if you are going through a good phase, don't alter the dose of medication you take without consulting a doctor.

If a doctor recommends drug treatment, insist that he or she explains each of the following points:

- the type of drug prescribed and its purpose
- how the drug works and what impact it will have on the symptoms/course of the disease
- what the disease would be like if not treated with the drug
- other treatment options and why they have not been recommended
- the major risks and side effects and any necessary precautions
- and give an overall evaluation of the risks versus the benefits of taking the drug.

Drugs for pain

Although the pain that accompanies arthritis can be overwhelming, continual use of strong pain killers is not the best way to treat it. If a joint is painful when you move it, your body is telling you to rest that part. Analgesics, by dulling the pain sensation, may allow overuse of inflamed joints and cause joint damage.

Taking too much could also lead to overdose or addiction (if narcotic analgesics are used) and they can damage the kidneys. Discuss the use of non-prescription analgesics with your doctor, especially if you are taking prescribed drugs at the same time.

Simple analgesics such as paracetamol, low-dose aspirin, dextropropoxyphene and codeine can provide some degree of pain relief and are less toxic than NSAIDs (see overleaf). Codeine gives better relief than paracetamol and aspirin but can cause more adverse side effects.

Creams and ointments

Many **topical medications** are available. Ointments containing agents such as methyl salicylate may be absorbed through the skin to some extent to pro-

SURGICAL SECOND WIND

AFTER BATTLING for six years with osteoarthritis in his right hip, Peter Vile chose to have a hip replacement operation in 1987.

Because Peter was only 53, his surgeon decided to try a new surgical technique and not cement-in the replacement joint. At the time, the latest research indicated that replacement hips would only last about 20 to 30 years so Peter might need another new hip in his lifetime. If, down the track, he did need a new hip, it was thought the second operation would be easier if the original replacement joint was not cemented in place.

Peter says he is generally happy with the results of his surgery. The arthritic pain which made it difficult to walk has gone and "touch wood" the disease has not attacked any of his other joints.

Unfortunately, after only six years, Peter is experiencing movement in the joint shaft and has been told that the joint will not last the expected 20 years — he says it has now been shown that the surgery is far more successful if the joints are cemented.

Nevertheless, he has no regrets. His convalescence went smoothly and he was able to return to the reasonably active existence he used to enjoy.

GETTING ON WITH LIFE

BARBARA WRIGHT's osteoarthritis was diagnosed back in 1978. Back-ache was the first symptom and x-rays revealed the disease in the joints of her thoracic spine. It developed in the base of her thumbs, knees, hips and wrists.

"I used to be a great book worm but now I don't read much at all because I find it difficult to sit for any length of time," Barbara explains.

While arthritis has imposed some restrictions on her lifestyle, she has taken many positive steps to keep it under control. She walks every day and has great faith in the homeopathic treatments administered by her general practitioner. She does not take any 'conventional' drugs for her condition.

Barbara uses a computer instead of handwriting. She has purchased a kneeling chair to make working at the computer more comfortable and when driving she uses a foam wedge to support her spine. She also purchased a water bed which, she says, has put an end to waking up each morning with a stiff back.

vide temporary pain relief but there is little scientific evidence that creams containing agents such as copper and aloe vera will help.

Drugs for inflammation

Large doses of aspirin can be used to reduce inflammation rather than control pain. There may be side effects, however, including irritation of the stomach lining, nausea, vomiting, ringing in the ears and decreased hearing. Various formulations have been developed to reduce stomach irritation, mostly modifications which cause slow absorption of the aspirin. The higher doses required for an anti-inflammatory effect should only be taken under medical supervision.

Other **non-steroidal anti-inflammatory drugs** or NSAIDs have replaced aspirin as the first-line drugs for treating inflammation. These include indomethacin (Arthrexin, Indocid), sulindac (Aclin, Clinoril), diclofenac (Voltaren), naproxen (Flexin, Naprogesic, Naprosyn, Synflex), ibuprofen (ACT 3, Brufen, Inflam, Niapren, Nurofen, Rafen) and ketoprofen (Orudis).

They are used to treat both osteo and rheumatoid arthritis as well as gout, are rapid in effect, and should be taken with food to reduce gastro-intestinal irritation. There is also a risk of NSAIDs causing peptic ulcers, increasing with age and/or previous history of ulceration. In Australia and the United Kingdom, 20% of all cases of ulcer haemorrhage or perforation (and associated deaths) are caused by these drugs.

Since they are among the most commonly prescribed group of drugs in the developed world, there is considerable potential for them to react with other drugs. This issue is of paramount importance for elderly people who may be taking several other medications. Special care should be exercised if they are taken at the same time as lithium, phenytoin, barbiturates, antihypertensive agents or diuretics.

NSAIDs are also available in lotions, creams, sprays and ointments, but it is doubtful that enough of the active ingredients actually reach the tissues affected by arthritis to have any positive impact.

Slow-acting anti-rheumatic drugs or SAARDs are used in the treatment of RA

ALTERNATIVE TREATMENTS OR QUACK CURES?

MANY alternative remedies have been advocated as effective therapies for arthritis. About 80% of people with rheumatoid arthritis alone have tried alternative treatments and about half of these patients continue to use them. Many claim to have benefited from their use.

Some herbal and homeopathic treatments may help sufferers but other remedies seem too bizarre to even consider. There's definitely no scientific basis for olden-day nostrums like dancing naked under an oak tree at midnight, soaking in barrels of cow manure, taking injections of ground rats' tails or dressing in the skin of a wolf or wild cat. Some modern-day treatments should also be approached with a healthy dose of scepticism — extreme cryotherapy (a combination of freezing and vigorous exercise), for example, or medicines containing the venom of Bolivian ants or garden fertiliser.

If you want to try an alternative treatment, ask yourself the following questions:

- Does the remedy claim to work for all types of arthritis as well as for other health problems?
- Are case histories or testimonials used as the only proof that the treatment works?
- Does it come without directions for proper use, a list of contents or ingredients?
- Does the packaging lack information or warnings about side effects?

If the answer to any of these four questions is YES, be suspicious about the legitimacy and safety of the product.

The Arthritis Foundation of Australia has evaluated the following non-conventional treatments, listed in alphabetical order.

Acupuncture is often used to reduce acute and chronic pain. Studies have shown evidence of pain improvement by using traditional or modified forms of acupuncture. It is not possible to say whether improvements are due to therapy or a placebo effect, but if the treatment gives you pain relief the reason why it works is not important.

Ball bearings The Arthritis Foundation actually has on file a published claim that sufferers can benefit from placing ball bearings in their underwear. This is definitely an unproven remedy.

Celery See Herbs, below.

Copper And what of the old favourite of wearing copper jewellery? The Arthritis Foundation offers only the opinion that it can do no harm. The promotion of copper jewellery and copper dietary supplements as treatments for arthritis is not based on clinical evidence.

Evening primrose oil This dietary supplement has been shown to have some impact on relieving inflammation but its long-term safety hasn't been confirmed.

Fish oil There exists weak but definite evidence that eating fish oil can have a mild anti-inflammatory effect. However, researchers have concluded that fish oil (and evening primrose oil) is unlikely to play a major role in the management of arthritis.

Herbs Celery, devil's claw, willow bark and yucca are some of the herbs that are supposed to be effective treatments for arthritis. Most herbal medicines appear to

to protect cartilage from irreversible damage due to inflammation. Examples are auranofin (oral gold), Myocrisin (gold injections), hydroxychloroquine (an anti-malarial drug), methotrexate, penicillamine, salazopyrin. Anti-malarials are the least toxic.

Exactly how these drugs work is not known and most take six to eight weeks to become effective. They should only be used if a patient hasn't responded to non-drug therapies, aspirin and NSAIDs, as their side effects are more serious. Regular blood, urine and eye tests are important to watch for side effects.

Corticosteroids, including cortisone, hydrocortisone, prednisone, prednisolone, and dexamethasone are another group of drugs used to reduce inflammation. Although they may slow down joint damage there is no clear evidence that they alter the ultimate destructive course of arthritis. They're often helpful when given by injection into the inflamed joint but they should only be used for short-term treatment of acute flare-ups or the systemic complications that accompany rheumatoid arthritis.

The adverse effects of corticosteroids include gastro-intestinal bleeding and suppression of some functions of the adrenal glands. You shouldn't stop using them abruptly as symptoms may be reactivated or you may experience a withdrawal syndrome. They can also cause muscle wasting and weakening of the bones due to calcium loss. ❑

do no harm but there is little information about their toxicity and some may have side effects. Tell your doctor which herbal medicines you are taking.

Vitamins Large doses of vitamins have not been found to have an effect on either the symptoms or course of the disease. Fat-soluble vitamins (A,D,E,K) accumulate in the body so they may be toxic if taken in large doses for a long time. Large doses of some water-soluble vitamins can also have toxic effects.

WD40 Believe it or not people have contacted the Arthritis Foundation claiming to have experienced relief from pain and stiffness by spraying WD40 on arthritic joints. Don't try this one.

Zinc One study of patients with chronic active rheumatoid arthritis showed that zinc supplements alleviated symptoms, but other studies have failed to demonstrate a significant benefit. Common adverse effects include gastric irritation and nausea and prolonged use may actually be harmful as it interferes with the absorption of other minerals.

ANNOUNCING

THE SIXTH CHOICE SUBSCRIBER DRAW

For new CHOICE subscriptions and renewals received 1 September to 31 December 1992.

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- ☐ Refrigerators (March 1992)
- ☐ Clothes dryers (March 1992)
- ☐ Unflued gas heaters (April 1992)
- ☐ Microwave ovens (June 1992)
- ☐ Car radio/cassette players (June 1992)
- ☐ Orbital sanders (June 1992).

These are products we bought for testing (we never take manufacturers' samples), so you won't be the first to turn them on or set them up. But we'll cover any service problems with a CHOICE warranty that'll match the manufacturers' — just as if you'd bought them new.

All new CHOICE subscriptions and renewals received from members and personal subscribers (including donors of gift subscriptions) by 31 December will go into the Draw, unless of course you indicate you don't want to be included.

(If you're not due to renew your subscription during the period, don't worry, we'll be holding other Draws during the year — your renewal notice will have the details.)

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10 The draw will be conducted at the office of the Australian Consumers' Association at 10 am on 4 January, 1993.
11 The winner will be notified by letter and published in the March 1993 issue of CHOICE magazine.
12 The promoter is Australian Consumers' Association, 57 Carrington Road, Marrickville NSW 2204.
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CHOICE LINES

Consumer Rights Advice

CHOICE operates consumer rights lines people having problems with a faulty p duct or a dispute with a service person. T lines set out what your basic rights are a what steps you can take to protect the These lines are also available in four l guages other than English — Vietname Arabic, Chinese and Turkish.

CHOICE Consumer Rights Advice:
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Youth lines

A line specifically for young consumers, t 'Ripped-off' Line, outlines your shoppi rights as well as letting you know what y can do if you run into problems with som thing you have bought.

Students can also call a resource line find out where to get up-to-date informati on the consumer movement and the e vironment. These two topics are the mo requested by students and teachers who rin our Consumer Information Service.

CHOICE 'Ripped-off' Line — Advice f Young Consumers: **0055 2000**
CHOICE Student Resource Guide:
0055 2001

Product advice

A number of product lines also summaris what to look for when you are buying particular product. Brand-name recommen dations aren't included, however — thes remains exclusive to CHOICE subscribers.

CHOICE Washing Machine Advice:
0055 20013
CHOICE Water Filter Advice:
0055 20014
CHOICE Baby Products Advice:
0055 20015
CHOICE Safer Domestic Pest Control Advice: **0055 20016**

Other lines

A media 'hotline' provides immediate and accurate background information on con- sumer issues being reported in the news media, while a 'suggestion line' gives you a chance to say what you would like to see tested or researched for publication in CHOICE.

CHOICE Media 'Hotline': **0055 20018**
CHOICE Suggestion Line: **0055 20017**

Calls attract a rate of 55 cents per minute.

CHOOSING GARDEN SECATEURS

Six dedicated men and women snipped and cut their way through green Black Wattle in a trial of garden secateurs. Their verdict: try before you buy!

BOUGHT a pair of secateurs lately? Were you, as we were initially, bewildered by the extraordinary choice — not to mention, price range?

You can pay anything between $5 and $100 for secateurs which, at first glance, look identical — hence the need to be able to distinguish the good performers from the merely adequate.

WHAT WE EVENTUALLY BOUGHT

Some of the brands on the market have as many as ten models to choose from. Additionally, there's the choice between types: Swiss pattern? Modern? Bypass or anvil?

Eventually we settled for the most popular and commonly available type: the Swiss pattern bypass. These garden snippers cut like scissors and are modelled on the original Felco secateurs manufactured in Switzerland. Where that type was not available, or not representative of that commonly bought by consumers, we included other 'bypass' types. For a low-down on secateur types see *Anvil vs bypass* below.

We ended up with 18 pairs of medium-sized general-purpose secateurs. We excluded those considered to be 'special-purpose' — those which claimed to be heavy-duty, for instance. Or for professional use. We also left out those labelled as flower-cutters, economy models, or specially designed for small hands.

'Modern' variations on the Swiss pattern design included different shapes, handle grips and lengths and different-shaped blades. There were also some odd claims about performance.

The **KAMAKI KGS240** boasted "35%-50% less cutting effort". This is meaningless: less cutting effort than what? It's also misleading. It implies these secateurs will cut more easily than others, but the user trial found to the contrary. They rated this pair 'worst' for ease of cutting. The 'double-pivot' design of these secateurs suggests more leverage which would normally make cutting easier. However, other factors such as blade sharpness, the blade's ability to hold an edge, and the geometry of the handles also play a part. According to our trial, this claim of less cutting effort seems to be unfounded.

ANVIL VS BYPASS

THE TERMS 'anvil' and 'bypass' refer to the type of cutting action. Whereas 'bypass' secateurs cut like scissors, anvil-type secateurs have only a top blade which crushes the branch against the flat bottom jaw.

Among professionals, the decision to buy one type or another is determined to a large degree by tradition. In some areas gardeners will only buy anvil types, whereas in others people swear by bypass. It seems whether they like anvil or bypass depends very much on what they were originally introduced to, although some gardeners maintain that cutting harder wood is much easier with a good quality anvil-type secateur.

The professional market in SA, particularly the Barossa Valley, is made up of almost 100% bypass. And, we're told, the Riverina is also gradually converting to bypass, apparently reflecting a nation-wide trend. The battle of the two styles is rapidly turning into a bypass coup, with models of bypass secateurs outnumbering anvil types by 10:1.

THE RECALL THAT WENT UNNOTICED

THE **KAMAKI KGS220** secateurs failed within the first few minutes of use; when our trialist tried to cut through a 13 mm branch, its blade edge bent and chipped so badly we had to withdraw it from the user trial.

We consider this failure to be extremely poor, and possibly the result of the blades not being hardened, as all secateur blades should be. Accordingly, we didn't proceed to trial this model further.

The manager of Edward Keller, distributor of **KAMAKI**, told us the blade failure of the **KG220** model is a known problem and, according to him, had already been the subject of a product recall addressed to all hardware stores and customers who had returned warranty cards. (The shop we visited must have missed out, or simply didn't act on it.)

The **WILKINSON SWORD** claims to have 20% improved cutting performance. Again, improved over what?

They also claim to be "the sharpest pruners you've ever used or your money back", yet our trialists rated these secateurs as equal tenth for ease of cutting.

LOOK BEFORE YOU BUY

The metal casting of our **LION** secateurs had a few lumps and bumps in it, and the **SUPERCRAFT TZZ1201** was stiff and wouldn't open properly because the tension nut had been over-tightened. (We had to fix it before we could trial it.)

THE CUTTING EDGE

The biggest question we wanted to answer was: which secateurs cut the easiest? However, when we began testing for blade sharpness we discovered that sharpness and ease of cutting are not necessarily related. Leverage, for instance, is such an important factor that any advantage offered by extra-sharp blades can be negated if the handles are too short or poorly designed, requiring the user to exert more effort.

From that point on we realised that a trial would be more use as an overall guide to buying secateurs than technical testing — a premise which was later shown to be correct when two models, **KAMAKI KGS 240** and **WILKINSON SWORD** were given low and middle scores respectively by our trialists. Both companies had made extraordinary claims about their cutting ability, but the trialists, not having read the packaging, were unaware of the marketing hype and had rated the products purely on their own ease-of-cutting experiences.

The secateurs best liked for their cutting ability were the **NBL**.

Although the **MARATHON** and the **SUPERCRAFT TZZ1201** appeared to be identical the trialists scored them slightly differently for ease of cutting. We don't know why — there may have been a variation in the sharpness of the two pairs.

The **KAMAKI 220** didn't make it through the first few minutes of the trial before being 'retired' due to damage. (See *photo above.*)

TRIAL BY PRUNING

Our six trialists were a mixture of men and women, with varying degrees of hand strength. One was an ex-orchardist with many years of experience, and another, an avid rose grower very familiar with pruning techniques.

Each trialist used every pair of secateurs over several days for about 45 minutes at a time on green Black Wattle up to 13 mm thick. (Black Wattle is a moderately hard wood and while 13 mm is getting towards the upper limits of the cutting capabilities of secateurs this size, it's certainly within their capabilities.) The trialists also cut a small amount of softer wood, and pruned a grape vine.

Buying a pair of secateurs is like buying a pair of boots — if you're going to be working for more than ten minutes at a time they've got to fit! And 'fit' is a very individual matter.

Even the **SANDVIK** secateurs, which most users thought were poorly balanced, heavy, and uncomfortable to grip, were liked by at least one trialist.

Those brands with deeply grooved finger slots can be very comfortable if the spacing suits your grip, but very uncomfortable if your fingers tend to sit on top of the humps instead of in the grooves.

Likewise, a high shoulder at the base of the handle may rub the base of the thumb on some people, but not on others. And some secateurs will pinch your hand between the handles when you close them.

The handle opening is particularly important if you have small hands, especially if it opens wider than your hand. If you have to use your finger tips to start the closing motion before your hand can wrap around the handles a repetitive task such as pruning can become quite tiring.

Four people found the **NBL**'s handle opening too wide for comfort (it was the widest at 178 mm of all those tested). The **RYSET TOPMAN, WILTSHIRE CTS 220,** and to a lesser extent the **FELCO, FPH, KAMAKI KGS 220, SANDVIK** and the **WILKINSON SWORD** also had fairly wide-opening handles but did not elicit as much comment as the **NBL**.

Interestingly, although most of the trialists rated the handle opening of the **NBL** as too wide, they still gave it a good 'overall impression' score. This implies that handle opening by itself was not a major factor in the degree of acceptance of a pair of secateurs. Ease of control is likely to be an issue too.

If you're looking for a pair of secateurs with a small opening width, you might like to try the **NYLEX GARDENA, SUPERCRAFT TZZ6100,** and **WILTSHIRE CTS2000** — although these were not the best-liked by the trialists, and one user said the **NYLEX GARDENA** felt flimsy and may easily break. (This concern was allayed by our strength test. The **NYLEX GARDENA** passed.)

Two of the models tested had rubber inserts in their handles. Those on the **CYCLONE** were heavily ribbed and several trialists thought they were uncomfortable and rubbed the hand. Yet those on the **SUPERCRAFT TZZ6100** were

smooth and relatively soft and were regarded as comfortable.

Those models with very hard smooth handles can become slippery with use, particularly on hot and humid days when your hands tend to sweat.

Light and heavy

Most people would have no trouble managing the secateurs we tested — most weighed around 250 g. The lightest was NYLEX GARDENA which weighed only 147 g, but at the other end of the scale the SANDVIK and the SUPERCRAFT TZZ6100 were quite heavy at 357 g and 353 g respectively. Most trialists commented on this: in particular, on the SANDVIK which was poorly balanced as well as being heavy. Both these brands could be tiring to use for anything but the briefest spells, and are really only suited to people with strong hands and arms.

Frustrations and irritations

All secateurs should have a lock which can be slid shut to keep the blades together. This is a safety feature which can become annoying if the lock switch is badly placed, too loose, or too stiff. It's certainly something you should check before buying (see *So, how do I choose?*).

The CYCLONE and SUPERCRAFT TZZ6100 models both developed a problem with their blade locks. The CYCLONE lock appeared to have moved out of its correct position and couldn't be turned to lock the blade. We had to use a screwdriver to prise it back into its correct position. This happened several times during testing. The distributor of Cyclone says this problem has since been rectified.

The SUPERCRAFT lock became so loose that at every cut it fell onto 'lock'. This became so frustrating that every trialist rated it poorly.

(Note: We bought and tested another pair which did not appear to have the same fault — although indications are that with time and use it may. It appears the rubber shock absorber between the handles tended to compress with constant use, so that the handles shut a little more each time. This in turn stopped the latch clicking into place. At the same time the pivot of the lock loosened up so much it simply swung on the pivot. These two faults combined resulted in the lock activating each time a piece of wood was cut.)

The strength test

After the user trial was complete, we tested each pair of secateurs for strength by trying to force them to cut through a piece of soft metal rod — a severe test of strength stipulated by the British Standard. It's designed to highlight inferior quality and therefore those brands likely to break during use. We then examined each pair for any signs of distortion or failure, looking particularly at the handles, the blades, and the pivot.

All brands passed this test without breaking or distorting, which suggests they all should survive normal everyday use.

So, how do I choose?

You should remember that what amounted to four hours of intense cutting represents heavy use for secateurs in normal backyard operations; we chose a period of 45 minutes for each trialist to highlight potential problems.

If you intend only using your secateurs for five minutes or so at a time, cost is likely to be a more critical factor than comfort (unless the lock flips on, or the handles pinch or jar your hand). The trial data suggested strongly that some brands were losing their edge faster than others, although we don't have sufficient evidence to state categorically which brands were affected.

We have listed in the table the brands in groups according to trialists' overall impressions which took into account comfort as well as cutting performance.

It's hard to recommend any particular brand due to the subjective nature of secateur use, and the relatively small size of the user trial conducted, but by trying a few of the brands from the 'average' or 'above average' groups you should be able to find a pair that should perform well and be comfortable to use.

The SUPERCRAFT TZZ6100 should be viewed with reservation due to the fault that developed with its blade lock.

Try as many secateurs as you can before you buy — even if some are way out of your price range. The more models you try, the better your judgment.

Note carefully how each pair feels in your hand. Sharp mouldings and places which rub may seem like a mild irritation in the shop but can turn into a blister-problem in use.

Look for secateurs with a comfortable non-slip handle. Narrow blades near the tip are also useful for delicate selective pruning as they enable easier access to the required stem.

While the FELCO which cost us $58 was the equal best performer and the most expensive of those we tested, it appears that price is not necessarily a guide to performance and comfort. (We were unable to test for long-term durability.)

The FHPs were the cheapest we bought at $11.70 but ranked with many of the reasonable-performing more expensive models. The second dearest, the KAMAKI KGS 240, ranked rather poorly by comparison.

We don't know whether the more expensive brands would last longer than the cheaper ones, but all brands passed the strength test. We can say there was no trend towards the cheaper ones losing their edge more quickly.

Additionally, ask yourself:

- Is it easy to knock the lock on and off? A lock which is loose, or badly placed can be a constant source of frustration.
- Is the spring too tight — or too soft?
- Is the lock easy to manipulate? If you have large fingers you may find the lock on some secateurs fiddly.
- If you are left-handed, do these secateurs suit you?
- Do they have rubber stoppers to absorb the jarring of cutting through harder wood?

TRYING SECATEURS IN THE SHOP

THE PROBLEM with many brands is that they're sealed in a blister pack, making it difficult to try them in the shop. Some of these packs have a slide-off cardboard back, but if the retailer or manufacturer has stapled the back to the plastic cover it's just as inaccessible as those in a standard blister pack.

Of the 15 brands tested, eight were impossible to remove from the packet without affecting the packaging. These were **CYCLONE, FHP, GARDENER'S CHOICE, KAMAKI, LION, RYSET TOPMAN, SANDVIK,** and **WOLF TOOLS.**

WOLF TOOLS has since assured us it will change its packaging.

One manufacturer wrote to us and told us it was the retailers who stapled the cardboard backs to counteract shoplifting.

We suggest you do not buy any pair of secateurs without handling every pair in the shop — even if it means asking the retailer to remove the staples from every pack. Each pair will feel different.

Obviously, you won't be able to try the secateurs for cutting ability in the shop, which is where our trial can help — for example, one trialist found when using one pair of secateurs he had to use two hands in order to exert enough pressure for a clean cut. Nevertheless, trying as many pairs as you can find before buying one will give you a good start. And don't buy any pair which you cannot try first!

SECATEURS

	Brand/model (in alphabetical order within groups)	Manufacturer/ distributor	Origin	1 Type	Price ($)*	Weight (g)	2 Max. cut diameter
equal	**FELCO** Model 4	White International	Switzerland	Swiss	62/85	232	not stat
	WOLF TOOLS RR19	GW Patton Consultants	Germany	Modern	39/40	210	16
	FHP Handyman C378	FHP	Taiwan	Swiss	13/24	220	not stat
	GARDENER'S CHOICE Deluxe Pruners 13-244-606	K mart	Korea	Modern	10/15	254	not stat
	LION LT226C2	R and R Imports	Taiwan	Swiss	18	238	not stat
	MARATHON 4300 Bypass	Peter Johnson	Korea	Swiss	20	266	not stat
	NBL Classic CGS-76	NBL	Japan	Swiss	25/30	252	not stat
equal	**NYLEX GARDENA** Special Pruner G341	Nylex Corporation	Germany	Modern	17/29	147	15
	RYSET TOPMAN No.8000-000	F & T Ryan	Japan	Swiss/Modern cross	23	232	15
	SANDVIK P110-23	Sandvik	France	Swiss/Modern cross	36/44	357	20
	SUPERCRAFT TZZ1201	Siddons Proline	Korea	Swiss	18	264	not state
	WILKINSON SWORD 910235	Korbond Industries	UK	Modern	37/46	195	15
	WILTSHIRE CTS 220	McPherson's Homewares	Japan	Swiss	20/29	233	25
	WILTSHIRE CTS 2000	McPherson's Homewares	Japan	Modern	30/39	256	20
	CYCLONE Bypass Pruner 657603	Boral Hardware	Taiwan	Modern	17/32	233	19
equal	**KAMAKI** Home Garden KGS 240	Edward Keller	Japan	Modern	46/48	291	19
	SUPERCRAFT TZZ6100	Siddons Proline	Korea	Modern	20/32	353	not state
	KAMAKI Home Garden KGS 220	Edward Keller	Japan	Swiss	23/39	245	25

* Prices shown are indicative of those found in nationwide checks in August 1992. *(A)* Difficult to do. *(B)* Failed within first minute of use; see *The recall that went unnoticed* on page 36.

BLADE TENSION

The blade tension on the models tested can be adjusted. This is important as they will all eventually need tightening. In all cases except the **FELCO** this is a simple job usually requiring just a spanner. However, with the **FELCO** it is a little difficult to get it just right (even when using two spanners) as turning the lock nut tends to turn the adjusting nut, changing the tension you've just set.

WARRANTIES

Most brands carried simple statements that the products were unconditionally guaranteed or guaranteed against faulty materials and workmanship, with no time periods given. These guarantees may prove rather meaningless. Only three brands, **CYCLONE, NYLEX GARDENA** and **WILKINSON SWORD** gave a time limit. The **CYCLONE** and **NYLEX GARDENA** have a 12-month guarantee, while the **WILKINSON SWORD** is more generous — a 10-year replacement warranty against faulty workmanship or materials.

1 TYPE

All models have a 'bypass' rather than an 'anvil' cutting action (see *Anvil vs bypass*).

The 'Swiss pattern' models are based on the original classic bypass secateurs made by the Swiss company, Felco.

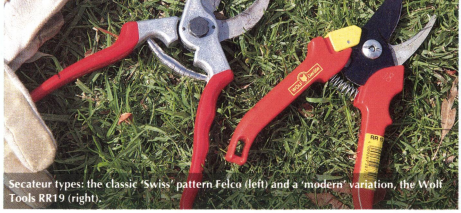
'Modern' secateurs are variants of the Swiss pattern model — they include different shapes, handle grips and length, and different-shaped blades.

2 CUTTING DIAMETER

Just over half the secateurs stated a maximum cutting diameter. However, this may not mean much because the shape of the blade is also an important factor in whether they will accept a particular-sized piece of wood.

Trialists consistently commented that the **WILTSHIRE CTS2000** had the narrowest opening. This was later confirmed by comparing the openings of all the pairs tested. If you intend cutting thicker pieces of wood this model might best be avoided.

It was interesting to note that all the models to receive negative comments on the blade opening being too narrow were all 'modern' design types. While we cannot say on the strength of this that all modern design types have this problem, it appears that if you intend cutting thicker pieces of wood you would probably be better off with the 'Swiss' style.



Secateur types: the classic 'Swiss' pattern Felco (left) and a 'modern' variation, the Wolf Tools RR19 (right).

TURES						TRIALISTS' RATINGS		
3 Hanging hole	3 Replaceable blades	4 'Half stop' opening	5 Sap groove	6 Shock absorber	7 Wire-cutting notch	8 Ease of cutting	9 Overall impression	Brand/model (in alphabetical order within groups)
	Cutting blade				✓	above average	above average	**FELCO** Model 4
✓			✓			above average	above average	**WOLF TOOLS** RR19
	Cutting blade				✓	above average	average	**FHP** Handyman C378
						average	average	**GARDENER'S CHOICE** Deluxe Pruners 13-244-606
	Cutting blade					average	average	**LION** LT226C2
	Both blades				✓	above average	average	**MARATHON** 4300 Bypass
	Cutting blade		✓	✓	✓	above average	average	**NBL** Classic CGS-76
✓	Both blades		✓		✓	average	average	**NYLEX GARDENA** Special Pruner G341
						average	average	**RYSET TOPMAN** No.8000-000
	Both blades		✓	✓		average	average	**SANDVIK** P110-23
	Both blades				✓	average	average	**SUPERCRAFT** TZZ1201
✓			✓		✓	average	average	**WILKINSON SWORD** 910235
	Cutting blade		✓	✓	✓	average	average	**WILTSHIRE** CTS 220
						average	average	**WILTSHIRE** CTS 2000
	Cutting blade					average	below average	**CYCLONE** Bypass Pruner 657603
✓	Both blades *(A)*		✓		✓	below average	below average	**KAMAKI** Home Garden KGS 240 Super
	Both blades *(A)*	✓		✓		below average	below average	**SUPERCRAFT** TZZ6100
	Cutting blade		✓		✓	Not trialled *(B)*	Not trialled *(B)*	**KAMAKI** Home Garden KGS 220

FEATURES

3 REPLACEABLE BLADES

If cared for properly secateur blades probably won't need replacing. However, in domestic use it's possible for them to become damaged or blunt if you use them on branches which are harder or thicker than the secateur can cope with. In this case it's cheaper to buy replacement blades instead of a whole new pair of secateurs.

If you think you might need to buy replacement blades, ask the retailer if they have any in stock the day you buy the secateurs. You may find you need to order them — and allow quite a bit of time for delivery.

With some brands you can only change the cutting blade (probably the most important one and certainly the one most likely to be damaged) and on others you can change both the cutting and the fixed blades.

While the **KAMAKI KGS240** and the **SUPERCRAFT TZZ6100** are listed as both blades being replaceable, the job is more complicated than most and in the case of the **KAMAKI** is not recommended.

4 'HALF STOP' OPENING

One very useful feature is the 'half stop' blade opening, which allows you to set the blade opening and hence the handle opening, to either half, or fully open. Unfortunately only one of the brands (the **SUPERCRAFT TZZ6100**) included this feature, but it's worth looking for if available. Certainly, it would stop your hand from becoming tired when pruning thin pieces of wood — especially if you have a smaller handspan.

5 SAP GROOVE

Because gum and sap from plants can quickly collect on the blades and make them stick, some secateurs also feature a 'sap groove'. The idea is to collect the sap in this groove and drain it away from the blade surfaces.

We noticed the **FELCO** we tested tended to gum up a little during use. Although this appeared to be a result of sap build-up on the blades, the fact that the **FELCO** doesn't have a sap groove may not have been the problem — other brands didn't either, and they didn't gum up during testing. We don't know why the **FELCO** blades kept sticking.

6 SHOCK ABSORBERS

Shock absorbers are a useful 'comfort' feature which reduce the jarring that occurs when you are cutting harder wood, but not all performed to expectations.

The shock absorbers on the **NBL** started to split and fall apart.

7 WIRE-CUTTING NOTCH

This notch allows you to cut wire tags, etc without damaging the secateur blades — which are not designed for such heavy work.

TRIALISTS' RATINGS

8 EASE OF CUTTING

Each trialist awarded a score out of 100 to each pair of secateurs, based on how easily they felt the secateurs cut through stems or branches during the trial and their scores were averaged. Ratings are relative to the average score for all the secateurs in the trial.

9 OVERALL IMPRESSION

Each trialist awarded an 'overall impression' score out of 100 to each pair of secateurs, taking into account comfort as well as cutting performance during the trial and their scores were averaged. Ratings are relative to the average score for all the secateurs in the trial.

RANKING

The secateurs are listed according to 'overall impression' scores, in alphabetical order where equal.

FROM OUR LAB

COFFEE BAGS

The coffee equivalent of a tea bag has appeared. Is it worth taking a jiggle?

IT'S TAKEN a long time, but the coffee bag has finally arrived. As with tea bags, the format offers great convenience — but has the taste suffered along the way?

We put them to a blind testing with 45 trialists and found that half could pick the difference between a brew from the bag and the same brand's filter coffee. And of these, there were more fans for the taste of coffee from the bag than freshly ground from the bean.

Bean bags

For our trial we used ROBERT TIMMS products. The coffee in the bag is a blend of ground and soluble (instant) coffee.

We chose the Mocha Kenya bags and tested them against a filter brew of finely ground ROBERT TIMMS Mocha Kenya beans (six grams per 180 mL). In order to match the strength of the two drinks we used one bag per 180 mL cup with infusion for one-and-a-half minutes. Our trialists were allowed to add their normal dose of milk and sugar.

Each tester received two cups of filter coffee and one cup of coffee from the bag. None of the samples was labelled. They were asked to pick the sample which was different — that is, the coffee bag cup.

In our trial, 25 out of 45 tasters picked the odd one out. This means there is a significant difference between the filter and bag coffees.

Of the tasters who correctly identified the odd sample, 16 (out of 25) liked coffee from the bag whereas only seven liked the filter coffee. Among those who liked both there was a slight preference for coffee from the bag.

Price

Without being told the price of the bags, 20 out of 45 tasters said they liked the coffee bags enough to buy them. "They're handy to have for visitors", or "when going on a trip", or "for the office". People thought they would be quick and easy to use — a convenience product.

This favourable response dropped by nearly half when price was taken into consideration. The bags work out at approximately 24 cents per cup, which is three times the price of the same brand's filter coffee. Still, it's cheaper than running down to the shop for a cup.

Packaging overkill?

Convenience products often have an environmental downside and the ROBERT TIMMS coffee bag is no exception. Each coffee bag comes individually sealed in a sachet to preserve freshness — this means there are eight bags, eight sachets and one cardboard box to house a mere 45 grams of product. By comparison, filter coffee is generally purchased in a minimum 200 gram pack.

Conclusion

You should be able to taste the difference between coffee from bags and straight from the bean. But, though it's not the same, the taste was well liked: the process of sticking good coffee into a bag is a hit. You may wish to avoid coffee bags for their high relative price or the use of multi-layered packaging, but their convenience is obvious.

PS. Thank you to 45 of our subscribers who formed the taste panel for this test.

To dunk or drip? Coffee bags taste good but use a lot of packaging.

HELLO, HELLO ...

Which answering machine is best for you? We looked at 15 models with recommended retail prices under $140 to help you decide.

You can tell a lot about people from the announcements they leave on their answering machines. But which machine is best able to express your personality telephonically?

Well, all the machines we tested did the basics well. We had no difficulty understanding any of the recorded announcements or messages, nor were there any major problems in operating them. So choosing is more of a matter of which features or functions you would like to have and how much you are prepared to spend.

BUYING GUIDE

There are three main types of answering machine. A single-tape machine records the announcement at the beginning of the tape and all the messages after that. As a result it has to play the announcement, fast-forward to the end of the last message, record the new message and rewind to the beginning ready for the next one.

Dual-tape machines have separate tapes for the announcement and messages. They just have to play the announcement, record the message and then rewind the announcement tape ready for the next call. This saves a lot of the shuttling back and forth of the single-tape machines.

The third type of machine has a digital memory chip that records the announcement and a single tape for recording messages. This gives you the convenience of the dual-tape machine without the extra tape mechanism and the extra cost that comes with it.

Single-tape machines are generally cheaper and suited to people who don't get a lot of messages. Once the tape starts to fill up, the delay between the end of the announcement and when the caller can begin to leave a message gets longer, which may irritate some callers.

Dual-tape machines don't have this problem and are thus more suited to business (or busy) users. You can also remove the message tape and replace it with a fresh one without having to record a new announcement. They are generally the most expensive type of answering machine.

Single-tape machines with digital announcements lie in between. They don't have the delay problems of single tapes with lots of messages, but if you want to change the announcement you have to wipe the old one. Both single and dual-tape machines let you change the tape with the announcement on it and retain the old announcement for later.

WHAT WE TESTED

As we wanted to look at the models you'd buy for home use, we decided to compare all answering machines with a recommended retail price of less than $140. This gave us nine single-tape machines (all using micro-cassettes), one cheap dual-tape machine and two single-tape machines with a digital announcement. These last three all use normal-size cassettes. We have also reported on three technically similar models.

FEATURES AND PERFORMANCE

The principal function of an answering machine is to take messages when you're not there. From that point of view, they all performed well. The differences between them were mainly related to ease of use, with different features useful for different users.

After you've listened to your messages some machines will assume you want to keep them and will start recording new messages where you left off, so you actually have to do something to allow the old messages to be overwritten. Others will assume you want to erase your messages and will return to the beginning of the tape before they start recording a new set of messages. In this case you actively have to tell the machine that you want the messages 'saved' if you want to keep them.

Which is best for you will depend your own usage patterns. A 'save' default, for example, would be appropriate if you often want to retain messages for future reference, or if there are a number of people in the household getting calls. An 'erase' default might be more convenient for a single user. We've listed the way each machine handles saving messages in the table.

It's also worth remembering that if you 'save' a day's messages and then get some new ones the following day, the tape will go right back to the beginning when you hit the playback button, so you'll have to listen to yesterday's calls as well as any new ones. The exception to this is the **DUOFONE TAD-410**, which has a useful 'message grouping' function allowing you to play back only any new messages received since you last listened. In fact, it creates a new group every time you take it out of 'answer' mode, so if you need to go back and listen to any saved messages, you can do so in blocks, rather than searching through the whole tape.

Most machines allow you to ring from somewhere else and turn them on and/or listen to any messages over the phone. For some, remote turn-on requires a code, for others, letting it ring a number of times will do the trick. The latter is useful as you don't have to remember you've forgotten to turn it on — any persistent caller will do, and they can then leave a message.

Other features which we felt made the units easier to use are included in the table and/or the notes to the table overleaf. Some units had features you might find useful for your own reasons and these are listed next to the profiles on pages 44 and 45.

WHAT TO BUY

If you're going to get lots of messages, you should probably choose a dual-tape machine like the **DUOFONE**, or a single-tape machine with a digital announcement such as the **ATD** or **CALLMASTER**. However, you can't listen to your messages remotely with the **DUOFONE TAD-**

ANSWERING MACHINES

	1 Brand/model (in rank order)	Manufacturer/ distributor	Origin	Price ($)*	Warranty (months)	2 Machine type	3 Maximum announce-ment (sec)	4 Maximum message (sec)	FEATURES 5 Indicates no. of messages	Aut fastfo
	DUOFONE TAD-410	Intertan	China	130/150	12	dual	unlimited	unlimited *(C)*		✓
	KAMBROOK TAM 50	Kambrook	Taiwan	89/100	12R	single	180	120	✓	
equal	**AUDIOLINE** 830 *(A)*	Moss Security	China	92/119	12R	single	120	210 *(D)*	✓	
	AUDIOLINE 860	Moss Security	China	129/139	12R	single	120	210 *(D)*	✓	
	RECORD A CALL 900 *(A)*	Telephone Equipment	China	79	12	single	60	60		
equal	**RECORD A CALL** 950	Telephone Equipment	China	129	12	single	60	60		
	TELECOM Monitor 301	Telecom Technologies	Thailand	98/99	12	single	180	120	✓	
	PANASONIC KX-T1006BA	Panasonic	Japan	119/129	12	single	30	60	✓ *(E)*	
	ATD Phonewatch 1800	Australian Telephone	China	96/119	12R	digital	16	60	✓	
equal	**SHIMASU** F-8005 *(A)*	Dick Smith	China	90	12	single	60 *(B)*	180	✓	
	SHIMASU F-8100	Dick Smith	China	129/130	12	single	60 *(B)*	180	✓	
	CALLMASTER 4800	Access Communications	China	98/99	12	digital	16	120		
equal	**GE** EA2-9810C	MH Group	Malaysia	89/129	12	single	unlimited	72	✓	
	RECORD A CALL 800	Telephone Equipment	China	79	12	single	60	60	✓	✓
	CODE-A-PHONE 1620	Hardie Communications	Korea	89/109	12	single	unlimited	120	✓	

* Prices shown are indicative of the range found in nationwide checks in June 1992.
(A) Not tested but technically similar to the model below. See *Comparable models*, right for more information.
(B) Can record two different announcements. The second is limited to 30 seconds.
(C) Can choose to limit messages to 30 seconds.
(D) Minus the length of the announcement.
(E) Indicates the number of messages with a counter.
(F) Also audible rewind.
(G) Doesn't need security code for remote turn-on.
12R 12 months' replacement warranty; the remainder are for parts and labour only.

410, and the digital machines had no remote features at all, so if you want these as well, you'll have to look at more expensive models. There is a slightly more costly DUOFONE offering remote playback (TAD-412), although you should note that we haven't checked the competitors in its price bracket.

If you want remote features and won't be getting lots of messages, you've got a few models to choose from in this test. The KAMBROOK, AUDIOLINEs or TELECOM would be good if you'd rather the machine assumed you wanted to keep your messages after you'd listened to them (if you're sharing the machine with others, say). The RECORD A CALL 900 or 950 would be good options if you're a single user and would prefer a model that sets itself up to erase messages as its default.

However, unless you need remote playback, the DUOFONE TAD-410 is well-featured and easy-to-use — good value for a dual-tape machine. Its ability to group messages for playback is particularly useful.

1 COMPARABLE MODELS

Three of the models in the table are technically similar to models that were tested.

■ The **SHIMASU F-8005** is similar to the **F-8100** but you can't listen to messages remotely.

■ The **AUDIOLINE 830** and **RECORD A CALL 900** are similar to the **860** and **950** respectively, but don't include a time/date stamp. This feature uses a synthetic voice to add the time and date at the end of each message.

A score in brackets for these comparable models means we haven't assessed this aspect of the machine but because it's technically similar to the model we did test, we've allocated it the same score.

2 MACHINE TYPE

There are three types of answering machine in the test. The **DUOFONE** uses separate tapes for announcements and messages. The **ATD** and **CALLMASTER** have a digital announcement and a tape for messages. The other machines record the announcements and messages on a single tape. The relative merits of the three types are discussed in more detail in the main article.

3 MAXIMUM ANNOUNCEMENT LENGTH

Most of the machines tested have some sort of limit on the length of outgoing message (announcement) you can leave on the tape. Those that don't are limited by the length of the tape, but to all intents and purposes are 'unlimited' as stated in the table. Those that are limited vary from 16 seconds to three minutes.

Sixteen seconds should be plenty of time for an announcement — about the time it would have taken to read the last paragraph.

None of the units tested has a fixed announcement length. They all allow you to leave announcements that are shorter than the maximum, and all units but the **DUOFONE**, **GE** and **PANASONIC** automatically replay the announcement after it has been recorded.

4 MAXIMUM MESSAGE LENGTH

All but one of the machines tested cut callers off if they try to leave too long a message. However, none cuts you off in less than a minute.

FEATURES

CALL SCREENING

All units allow you to listen to incoming calls while they are being recorded to decide whether or not you want to answer them in person.

ONE-TOUCH PLAYBACK

When you return home and want to listen to your messages, all except two have just one button to press to do this. The two units that don't have this feature (**CALLMASTER** and **ATD PHONEWATCH**) have ordinary cassette-player keys: you 'rewind' to get to the beginning, then press 'play'.

5 INDICATES NO. OF MESSAGES RECORDED

All models tested have a light to indicate messages have been left. Most flash the light to indicate the number of messages,

	PERFORMANCE								
ilt r ack	8 Non-messages ignored	9 Remote play/ turn-on	10 Message clarity	11 Ease of use score (%)	12 Controls score (%)	13 Instructions score (%)	14 Overall score (%)	Brand/model (in rank order)	
e		–/✓ *(G)*	pass	69	60	85	81	**DUOFONE** TAD-410	
e	✓	✓/✓	pass	56	55	50	73	**KAMBROOK** TAM 50	
e	✓	✓/✓ *(G)*	pass	56	(50)	(50)	(72)	**AUDIOLINE** 830	equal
e	✓	✓/✓ *(G)*	pass	56	50	50	72	**AUDIOLINE** 860	
se	✓	✓/✓ *(G)*	pass	50	(60)	(40)	(71)	**RECORD A CALL** 900	
se	✓	✓/✓ *(G)*	pass	50	60	40	71	**RECORD A CALL** 950	equal
e	✓	✓/✓	pass	56	45	50	71	**TELECOM** Monitor 301	
se	✓	✓/✓ *(G)*	pass	38	50	80	69	**PANASONIC** KX-T1006BA	
e		–/–	pass	38	55	55	68	**ATD** Phonewatch 1800	
se	✓	–/–	pass	38	(60)	(50)	(68)	**SHIMASU** F-8005	equal
se	✓	✓/–	pass	38	60	50	68	**SHIMASU** F-8100	
e		–/–	pass	31	55	70	67	**CALLMASTER** 4800	
se		✓/✓	pass	38	50	60	67	**GE** EA2-9810C	equal
se		✓/✓ *(G)*	pass	50	40	40	67	**RECORD A CALL** 800	
se	✓	✓/✓	pass	31	55	50	65	**CODE-A-PHONE** 1620	

but not all. The **PANASONIC** has a numerical counter to tell you this. If you listen to your messages and decide to save them, most will indicate messages are still there, the exceptions being the **DUOFONE** and **PANASONIC**.

8 AUDIBLE FASTFORWARD

The ability to listen to messages in fastforward and/or rewind makes it easier to find things on the tape. The only model we tested which allowed listening in both directions was the **DUOFONE**.

7 DEFAULT AFTER PLAYBACK

After playing back your messages, you may want to save them to listen to again later, particularly if they're for someone else in your house or they include some vital piece of information and you don't have pen and paper handy. Some machines assume you want to save them but give you the option of erasing them (**'save' default**); others assume you don't want to keep them but give you the option of saving (**'erase' default**).

We thought the former was more useful, particularly in cases where more than one person in the household receives messages. However, depending on your individual circumstances you may find the latter better.

Whatever the default, messages aren't actually erased until a new message comes along, except in the case of the **AUDIOLINE**s where choosing 'erase' means messages are immediately irretrievable.

8 NON-MESSAGES IGNORED

If a caller hangs up while your outgoing message is being played, ideally the call should be ignored and not indicated. Units that work this way are indicated in the table.

9 REMOTE PLAY/TURN-ON

Remote play allows you to listen to messages when you're away from the machine by ringing up your phone and entering a code. This can be done using the keypad on the tone-dialling phones or by using a beeper through the mouthpiece. (If you think you'd be likely to use this feature, check that a beeper is available as an optional extra.)

Remote turn-on allows you to turn the machine on remotely if you left home in a fit of forgetfulness. It's done by ringing up and letting it ring for anywhere between 10 and 16 rings. Some will then turn on automatically while others ask you to enter a code to turn them on. Those that don't need a code — footnoted *(G)* — can be turned on by a persistent caller.

PERFORMANCE

10 MESSAGE CLARITY

This was a subjective assessment of the clarity of both announcements and messages. While the sound quality wasn't perfect, all messages were easily understood. Since that is the primary function of these machines they were all deemed to have passed.

11 EASE OF USE SCORE

Those features that contribute to the machine's ease of use were used to derive this score. These include the type of machine; the ability to let you listen to the tape while fast forwarding or rewinding; being able to turn the machine on remotely; default after playback; the ability to vary the length of your announcements (all machines have this); indication of the number of messages; and ignoring calls if the caller has hung up during the announcement.

12 CONTROLS SCORE

All units were assessed for the size, layout and action of their controls. They were all considered fair although some were better than others and most suffered from an awkwardly located volume/on-off switch.

13 INSTRUCTIONS SCORE

All units came with a sheet or booklet of written instructions, which were subjectively assessed for quality. All bar the **CALLMASTER** and **ATD** had a summary of operating instructions printed under the tape compartment lid as well. This was considered useful, but the two units without this feature weren't downgraded because their operation was considered fairly intuitive.

14 OVERALL SCORE

This score is made up of the four performance scores weighted as follows:

- Message clarity (all scored 100%): 40%
- Ease of use: 30%
- Controls score: 20%
- Instructions score: 10%

PROFILES

In rank order except where equal (see table). Prices are indicative of the range found in nationwide checks in June 1992.

DUOFONE TAD-410

Price: $130/$150

Description: Dual-tape machine with remote turn-on; normal cassettes; access to old messages until overwritten.

Overall impression: A good machine for all users except those who need to access messages remotely. Very good instructions.

Special features:

- Groups messages and only plays back new ones if desired.
- Switchable number of rings (1 or 4) before answering.
- Memo record function with separate indicator light.
- Announce-only function.
- Can erase messages on rewind.
- Can listen to messages when either fast forwarding or rewinding.

Drawbacks:

- Doesn't indicate the number of messages recorded.
- Doesn't replay a new outgoing message automatically after you've recorded it — you have to do it manually.
- Doesn't offer remote playback.

KAMBROOK TAM 50

Price: $89/$100

Description: Single-tape microcassette machine with remote play and turn-on; access to old messages until overwritten.

Overall impression: Well-featured and easy to use, it was the best of the single-tape machines.

Special features:

- 'Tollsaver' feature for remote playback.
- Can change outgoing message remotely.
- Can fastforward, rewind and erase remotely.

AUDIOLINE 880

Price: $129/$139

Description: Single-tape microcassette machine with remote play and turn-on; defaults to 'save' messages but see 'drawbacks' below.

Overall impression: One of the best single-tape machines; well-featured and easy to use.

Special features:

- Can mark messages with time and date.
- Memo record function.
- Announce-only function.
- Switchable number of rings (2 or 4) before answering.

Drawbacks:

- If you choose to 'erase' messages after playback, they cannot be retrieved.

RECORD A CALL 950

Price: $129

Description: Single-tape microcassette machine with remote play and turn-on; unless old messages 'saved', you have access to them only until first new message is recorded.

Overall impression: A good machine with some good features, and fairly easy to use.

Special features:

- Can mark messages with time and date.
- Memo record function.
- Remote memo record function.
- 'Tollsaver' feature for remote playback.

Drawbacks:

- Doesn't indicate number of messages.

TELECOM MONITOR 301

Price: $98/$99

Description: Single-tape microcassette machine with remote play and turn-on; if set to 'erase', access to old messages only until first new message is recorded.

Overall impression: Some good features, particularly for remote use.

Special features:

- Memo record function.
- 'Tollsaver' feature for remote playback.
- Can change outgoing message and turn off machine remotely.
- Remote 'tape full' indication.
- Remote fastforward and rewind.

PANASONIC KX-T1006BA

Price: $119/$129

Description: Single-tape microcassette machine with remote play and turn-on access to old messages until overwritten.

Overall impression: A good performer in many respects, and very good instructions. But the way it implements its functions is not as logical as some.

Special features:

- Memo record function.
- Remote memo record function.
- 'Tollsaver' for remote playback.

Drawbacks:

- Message indicator is reset after messages have been played, even if they've been saved, which means you don't know how many messages are on the tape.
- Doesn't replay a new outgoing message automatically after you've recorded it — you have to do it manually.

ATO PHONEWATCH 1800

Price: $96/$119

Description: Single-tape machine (normal cassette) with digital recording of outgoing message; defaults to 'save' messages after playback; access to old messages until overwritten.

Overall impression: Very basic, with few features and manual tape transport controls. But digital announcement means caller is not inconvenienced when there are lots of messages already on the machine.

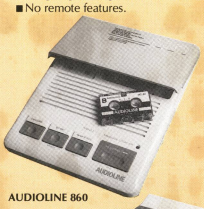
Special features:

- Memo record function.

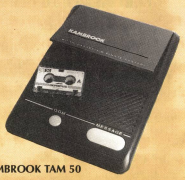
Drawbacks:

- Outgoing message limited to 16 seconds.
- No remote features.

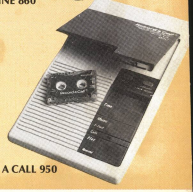
DUOFONE TAD-410



AUDIOLINE 860



KAMBROOK TAM 50



RECORD A CALL 950

SHIMASU F-8100

Price: $129/$130

Description: Single-tape microcassette machine with remote playback; unless old messages 'saved', you have access to them only until first new message is recorded.

Overall impression: Has some good features, but the way it implements its functions is not as logical as some.

Special features:

- Memo record function.
- Announce-only function.
- Switchable number of rings (2 or 4) before answering.
- 'Tollsaver' for remote playback (although unlike other models with this feature, it answers first, then gives you a tone to tell you no new messages received).
- Can change outgoing message remotely
- Memo record, fastforward, rewind and pause remotely.

Drawbacks:

- Cannot be turned on remotely.

CALLMASTER 4800

(Not pictured)

Price: $98/$99

Description: Single-tape machine (normal cassette) with digital recording of outgoing message; access to old messages until overwritten.

Overall impression: Very basic, with few features and manual tape transport controls. Outgoing message limited to 16 seconds; cannot indicate number of messages; and no remote features. But digital announcement means caller is not inconvenienced when there are lots of messages already on the machine.

GE EA2-9810C

(Not pictured)

Price: $89/$129

Description: Single-tape microcassette machine with remote play and turn-on; unless old messages 'saved', you have access to them only until first new message.

Overall impression: A fair single-tape machine, but not particularly good if more than one person is going to be using it, as messages cannot be saved if listened to remotely.

RECORD A CALL 800

(Not pictured)

Price: $79

Description: Single-tape microcassette machine with remote play and turn-on; unless old messages 'saved', you have access to them only until first new message is recorded.

Overall impression: Some good features ('tollsaver' for remote playback and audible during fastforward), but control logic not as good as others and controls are poorly marked.

CODE-A-PHONE 1620

(Not pictured)

Price: $89/$109

Description: Single-tape microcassette machine with remote play and turn-on; unless old messages 'saved', you have access to them only until first new message.

Overall impression: A few good features (remote tape full indication) but control logic particularly poor — if you save messages and then switch the machine to 'standby', it cancels your 'save' instruction.

TELECOM MONITOR 301

ATD PHONEWATCH 1800

PANASONIC KX-T1006BA

SHIMASU F-8100

GUIDE TO SPECIAL FEATURES

THE FEATURES we took into account when assessing the ease of use of the machines are included in the table on pages 42 and 43. Here are some others which you might find useful.

Memo record: This allows you to leave messages to yourself on the incoming message tape. Most machines have this function, and the memos are generally counted as messages by the calls indicator — except in the case of the **DUOFONE** which has a separate indicator for memos.

Time and date marking: This puts a synthesised voice message giving the day and time at the end of each incoming message. Only the **AUDIOLINE 860** and **RECORD A CALL 950** machines have this feature.

Number of rings before answering: Some machines allow you to select the number of times the phone is allowed to ring before the call is answered. This can be useful if you're at home when the machine is on, with more rings giving you more time to answer in person.

Announce-only mode: If you don't want callers to leave a message (if you're on holidays and want to redirect calls for example), this feature allows the machine to play an announcement and then simply disconnect the caller. The **SHIMASU** units let you record a separate message which only plays in this mode.

Message tape erase on rewind: You might want to erase all the messages on a tape at once, rather than waiting for them to be over-written, perhaps for security reasons. The **DUOFONE** gives you the option of doing this when rewinding the tape.

'Tollsaver' for remote playback: This feature is designed to let you know whether new calls have been received since your last message retrieval by remote control. The unit commonly answers on the second ring if there are messages, or the fourth otherwise. This means you can hang up after the third ring to save time and money. The **SHIMASU** operates slightly differently in that it answers first then gives a tone to indicate no new messages received.

Other remote features: Some units will allow you to change your outgoing message by remote control, or to turn off the machine. Other remote features include telling you the message tape is full; letting you fast forward, rewind or pause when playing back messages; or leaving a memo message on your own machine.

LETTERS

Send your letters to **CHOICE, 57 Carrington Road, Marrickville 2204**. Where possible, please include your daytime telephone number, as we may wish to contact you direct for more information or to discuss your comments and queries.

XYZ OF GST

We received a total of 18 letters on the subject of our article in July entitled The ABC of GST. *Here is a cross-section of the kinds of views expressed.*

... ON 'GOVERNMENT FIGURES'

By using the government's propaganda figures in the article on the GST, the ACA has surrendered its independent status to become a political arm of the Labor Party. Assessments from both sides of politics should have been compared, or an independent view given.

R N Anderson, Ingham Qld

By "government figures" we presume this writer refers to Treasury figures, which we did use in our calculations in various ways. In fact, when working out the price effects on commodities and services (ie factoring in the effects of the elimination of payroll tax, excise taxes and wholesale taxes), we used the Treasury figures on the advice of shadow treasurer, Peter Reith's office — his office sent them to us.

We also used the Treasury's assumptions on tax bracket creep but not without careful consideration. We first did our own analysis and then looked at the Treasury figures. The two produced very similar results, so we used Treasury's as they were slightly more conservative.

In the case of health care we did not use the Treasury figures at all, but made calculations based on reasonable assumptions, using the actual current expenditure of our individual and family case studies.

... ON CASE STUDIES

After a long break we have 'returned to the fold' and thank you for a magazine that does not insult people's intelligence.

Today the July edition arrived and I am writing regards your analysis of GST — to be or not to be. Unfortunately, you omitted a case study for quite a proportion of the population, ie aged, single pensioners without investments or substantial savings.

No doubt about the verdict though. Just thought I'd draw your attention to it. Keep up the good work. CHOICE has really come a long way since we first subscribed to it.

G Libiseller, Glenelg SA

The case studies were real people in various circumstances. Unfortunately, we couldn't cover every scenario of course, but as examples they illustrate that the proposed GST and its other associated tax reforms and compensatory measures will have very different effects according to individual spending/earning/saving patterns. One of our major points was that averages, even across particular groups, hide a lot of variation.

... AND PARTY-POLITICS

I totally disagree with your decision to depart from the non-political base of the Association, which I have supported for many years. I already have access to many political viewpoints and I do not appreciate space being wasted in CHOICE on matters of political significance.

In my view it is virtually impossible to provide an impartial report on matters such as the GST. I am also irritated by the fact that you are unable to control so-called 'leaks' which enable the media to announce your views before I receive my copy of CHOICE. This also demonstrates the folly of departing from established practices. It has often been said it is wise to 'stick to the things you know' and I suggest you should consider this carefully before you start to damage the reputation of the ACA.

W E Kirby, South Blackburn Vic

We were aware that whatever we said and no matter how impartial our analysis was some people would perceive our article as calculated support or denigration of the Fightback! package. The truth is we are an independent organisation, with no particular political axes to grind. But there are indeed cases where politicians will try to use our material to their advantage (manufacturers try to do this too, if we criticise or recommend their products). It's worth noting that Paul Keating raised a broad-based consumption tax as one of a number of options for tax reform in 1985, and we were unpersuaded then as we are now — which party is proposing it is not relevant to us.

In terms of "leaks", unfortunately we have very little control. The media embargo placed on each issue of CHOICE *works as a 'gentleman's agreement' between ourselves and the media. In this case, Peter Reith chose to break our embargo and the media, obviously, were not willing to remain silent. Nevertheless, we asked them to maintain the normal two-week embargo on the rest of the July issue, which they did.*

... ON BALANCE

Congratulations on your detailed description of the likely effect of the Coalition's GST. This is the first 'balanced' report that I have seen although there are obviously many imponderables and uncertainties as to the likely effect upon certain types of wage earners.

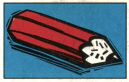
The one area where I feel more detailed study is required is the possible extended benefit of the abolition of fuel excise.

As all our food and many other essential requirements have to be transported across country, delivery costs could be drastically reduced if petrol/diesel prices drop.

If, subsequently, this led to reduced prices of these goods in store, all customers would certainly gain some benefit to offset the disadvantages of GST.

K Brady, Frankston Vic

The abolition of fuel excise is indeed likely to have a flow-on effect on the price of many goods and services. It's difficult to predict exactly what this effect would be, since it depends on how much of the cost reduction ends up being passed on to consumers. However, our case study calculations did assume prices in general would drop in response to the removal of both payroll tax and fuel excise. It's also worth noting that the environment movement is not very happy with the increased usage that may come with cheaper petrol — more road transport, more pollution, more CO_2 emissions, and thus more environmental problems.



WHAT DO YOU KNOW?

1 What's the fee charged in most cases by financial institutions for issuing traveller's cheques?
A) 0.5% of face value.
B) 1% of face value.
C) 2% of face value.

2 The greatest risk of having your car stolen is from:
A) CHOICE lab staff performing a test.
B) Joy riders.
C) A professional thief.

3 If you're getting a headache from your gas room heater, which emitted gas could be the culprit?
A) Nitrous oxide.
B) Hydrogen sulphide.
C) Carbon monoxide.

4 The new federal minister for consumer affairs is:
A) Graham Richardson.
B) Louise Sylvan.
C) Jeannette McHugh.

5 Compared with an unflued gas room heater, in heating a room a flued heater is:
A) 20%-30% less fuel efficient.
B) Equally fuel efficient.
C) 20%-30% more fuel efficient.

6 Can you use a gas room heater with natural gas if it has been designed for liquefied petroleum gas (LPG)?
A) Never.
B) Not until the burners have been adjusted or replaced.
C) There is no problem with any common household gas.

7 How much cash will your travel insurance cover if it gets stolen during your trip?
A) None.
B) A small amount only.
C) As much as you notify the company you will be carrying.

8 Which women are at increased risk of developing osteoporosis?
A) Thin, sedentary and Anglo-Saxon in origin.
B) Smokers.
C) Someone whose mother stooped with age.
D) All of the above.

9 How much more petrol does an Australian Honda Accord use than an American Honda Accord?
A) 25%.
B) Don't be silly, it's the same!
C) 5%.

ANSWERS

1. B
2. B
3. C. If you're getting headaches you should stop using the appliance and have it checked by your gas utility.
4. C
5. A
6. B
7. A or **B.** Most travel insurance policies cover little or no cash.
8. D
9. A. A report prepared for the Commonwealth Department of Transport and Communications has found most of the high-sales-volume imported cars in Australia have significantly higher fuel consumption than their US counterparts. The reason is unknown, though it's believed more effort goes into preparing cars for the US where there are severe penalties if fuel economy targets are not achieved.

RECALLS AND BANS

If you find a recall or ban not on our list please let us know.

Pfizer has recalled 60-capsule packs of **OBIRON EXTRA FOR WOMEN** (batch number 214 29201A) as the label claim for iron is incorrect, understating the iron content of the product. Return to retailer for replacement or call 008 226 655.

General Motors has recalled **1992 HOLDEN JACKAROO TOWBAR TONGUE BOLT 92-Z-01** (sold 2/4/92 to 8/7/92) as the bolt may not have been tightened correctly when fitted and the tongue may come away from the towbar. Return to Holden for inspection.

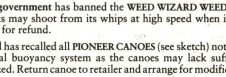
Cigweld has recalled **AIR-VIVA 2 MANUAL RESUSCITATORS** (made 1986); a problem exists with the valve such that when the silicon bag is squeezed too fast the valve (which allows gas to enter the patient's airway) may not function properly. Contact CIG for free replacement of valve.

Panasonic has recalled **PANASONIC RICE COOKERS SR-W10GHP, SR-W18GHP** (sold after 26/6/92) as in some cookers there is a small hole above the power cord fixture; insertion of fingers or instruments into the hole could result in injury. Return to Panasonic for replacement. Call 008 806 030.

Heinz has recalled 125 gram cans of **HEINZ STRAINED PEACH AND APPLE BABY FOOD** as they may contain baked beans in ham sauce. There may be harmful bacteria present because of inadequate cooking time. Do not eat. The code printed on the bottom of affected cans is EX66 1742 HBD. Return to retailer for refund.

The Queensland government has banned the **WEED WIZARD WEED CUTTER** as metal links may shoot from its whips at high speed when in use. Return to retailer for refund.

Nylex Rotomould has recalled all **PIONEER CANOES** (see sketch) not fitted with an additional buoyancy system as the canoes may lack sufficient buoyancy if capsized. Return canoe to retailer and arrange for modification free of charge.



TWELVE MONTH INDEX

NOVEMBER 1991 — OCTOBER 1992

(T) test
(D) includes assessment of suitability for those with disabilities
(F) feature — general advice
(M) feature — includes market information
(S) subscriber survey or user trial
(C) Consumer in law
(L) letter
(U) update of previous report
*** additions or corrections to reports**

Abattoirs Jun(F),Sep(L)
Aluminium in the diet Jan(F),Apr*
Annuities Mar(F)
Answering machines Oct(T)
Anti-discrimination legislation Jan(C)
Arthritis Oct(F)
Audio equipment
  buying hifi components Apr(F)
  car radio/cassette players Jun(T)
  personal stereos Dec(T,D)
Bank accounts Sep(M)
Bicycle helmets Oct(T)
Blood alcohol Dec(T)
Bottled water Jan(T),Feb*
Bunk beds Jan(F)
Business insolvency Mar(C)
Buying guide, annual Dec
Carpets, spot cleaners for Sep(T)
Cars
  insurance Feb(M)
  radio/cassette players Jun(T)
  reliability survey Aug(S)
  re-refined oils Dec(T)
  steering wheel locks May(T,D)
Cellular phones Jul(T,D),Oct(L)
Champagne Dec(T)
Chemicals in the home Sep(F)
Cholesterol and oat bran Jun(F)
Clothes dryers Mar(T,D)
Coffee bags Oct(S)
Complaints against lawyers Jun(C)
Cooktops, choosing Jan(M)
Cordless drills Jan(T,D), Jul(L)
Cordless kettles Dec(T,D)
Do-it-yourself and the law May(C)
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